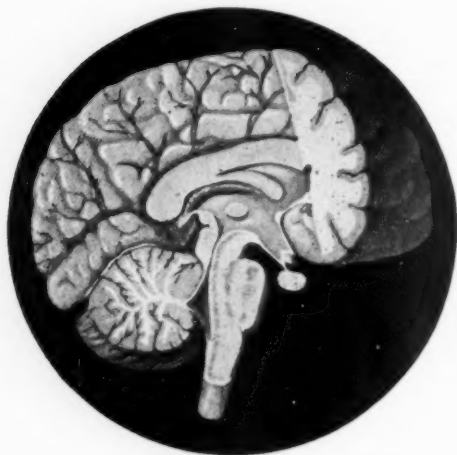


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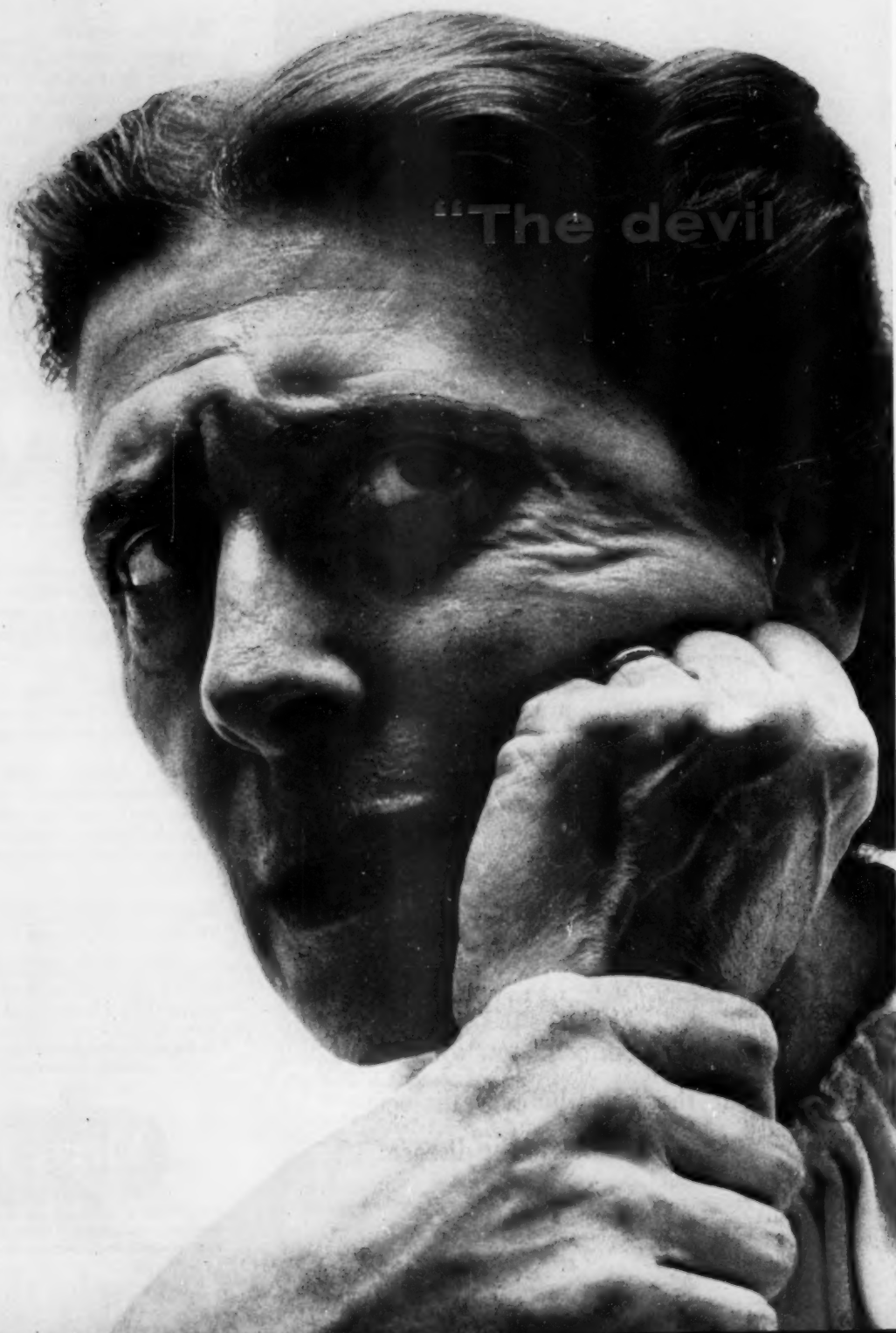
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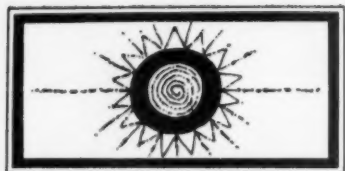
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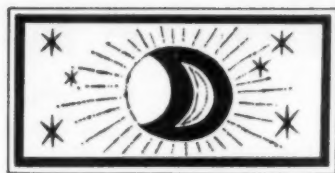


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In 1 series of 55 hospitalized psychotic patients treated with Vesprin, marked to moderate improvement occurred in approximately 66 per cent.

Five patients were discharged from the hospital. Two of these patients had not responded to any previous treatment.

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in 11 of the 12 children who were treated with Vesprin for at least 2 months. In none of the children were any significant side effects observed.

In a third series of 123 psychotic patients treated with Vesprin for more than 3 months, 5 recovered from all of their active psychotic manifestations, particularly delusions and hallucinations, and 24 recovered from most psychotic manifestations with good social remission. An additional 78 patients showed significant improvement in their psychotic behavior.

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studies gave no evidence of drug toxicity. Another investigator thought that Vesprin appeared to be more active and rapid in effect. The best response to Vesprin was seen in overactive, troublesome schizophrenic patients.

WHAT ARE THE ADVANTAGES? Clinical experience in hundreds of patients has shown that Vesprin does not oversedate the patient into sleepiness, drowsiness and lethargy. Drug-induced agitation is minimal.

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Extensive clinical experience has shown Vesprin to be singularly free from toxicity. Clinicians who have worked with the drug over long periods have not seen

jaundice or liver damage, blood dyscrasias, or convulsions. Skin eruptions, photosensitivity or hyperthermia have been rarely observed.

WHAT ARE THE SIDE EFFECTS? Investigators have reported such symptoms as dizziness, nausea, weakness, drowsiness and epigastric distress in patients treated with Vesprin. Postural hypotension has been seen occasionally in normotensive patients. A hypotensive effect has been observed in patients with high blood pressure.

Anxiety and restlessness have been observed in some patients, and gain in weight in a few. These effects have usually been mild, and, as a rule have disappeared when the dosage was reduced or treatment stopped.

The most commonly encountered side effect has been the development of a Parkinson-like syndrome with motor disturbances and extrapyramidal symptoms. This syndrome is reversible and symptoms usually subside with a reduction of dosage or discontinuance of medication for 2 or 3 days.



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WHAT IS THE DOSAGE? The recommended adult dosage of Vesprin is 25 mg. t.i.d., to be adjusted according to patient response. This dose may be increased until the desired clinical effect has been achieved, or until unwanted side effects become a problem.

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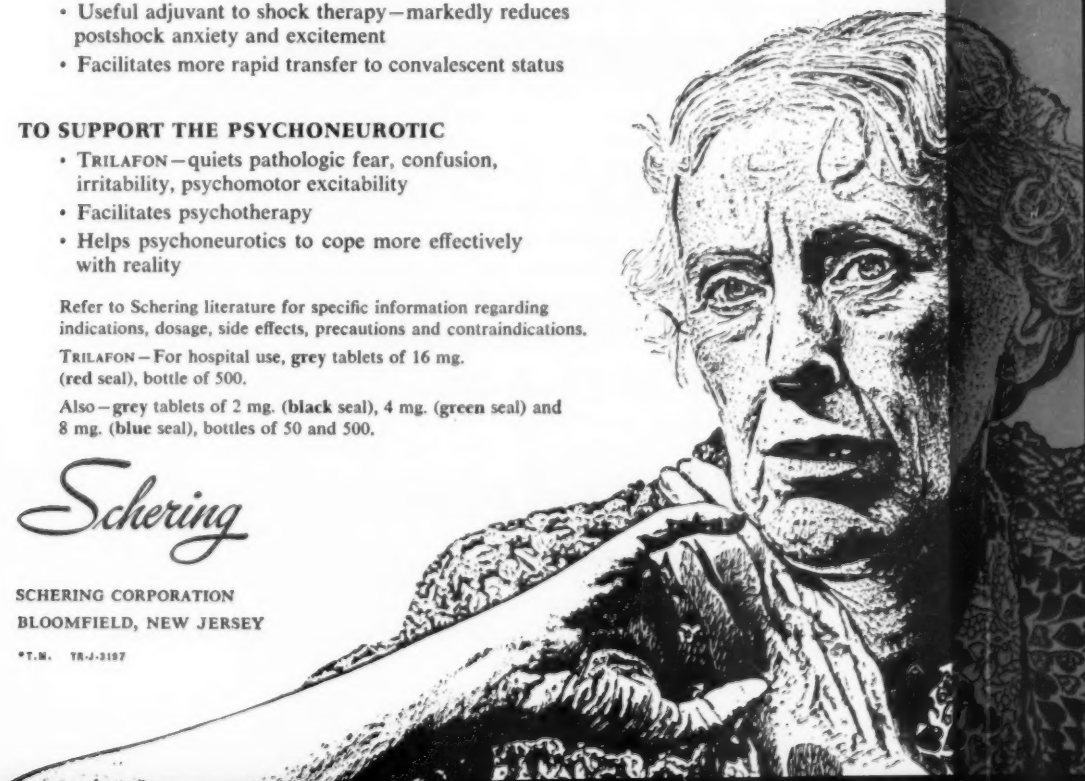
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FELLOWSHIP LECTURE

EUGEN BLEULER AND PRESENT-DAY PSYCHIATRY¹GREGORY ZILBOORG, M.D.²

Observing anniversaries of births or deaths serves not only the conscious purpose of attesting our respect for those whom we value and love. It also serves the purpose of establishing the continuity between us and those who are no longer with us, and of asserting a kind of almost personal claim on the contributions which never were ours but of which we would like to consider ourselves legitimate heirs and therefore legitimate possessors. This claim is not always justified, but such is the way of men. We are apt to cling together more by solemnizing our past than by cultivating true ties with the present.

This circumstance makes the task of the historian not very grateful and a little uncertain. As a contemporary he cannot help but find himself one of the chorus singing praises, yet as a historian he must step back as it were, knit his brows or half close his eyes in order to see a little further, to establish a perspective, and to reconstruct a relationship between events and men which would to some extent at least reveal the inner dynamics of the course of events which we call history. While it is almost always true that history repeats itself, it is important that the historian not become a repetitious valedictorian of the reconstructed past.

The historian therefore cannot, at any rate he ought not to, overlook certain manifestations of history which may not be entirely consonant with the traditional tone of praise. After all, anniversaries and particularly centenaries of birth are not an appeal for funeral orations; they are stern even though solemn calls for appraisal of our own historical vision, which if expressed with charity for all must however not overlook the sunspots no matter how blinding the light of the sun itself.

It is because of these considerations that one must recall that in 1956, when the celebration of the centenary of Freud's birth took place, The American Psychiatric Association, cooperating in full measure with the American Psychoanalytic Association, represented a rather singular picture of Freudian exclusiveness so to speak. The centenary of Freud was duly observed as it should have been. Here and there stray objections were heard to many things Freud partly did and mostly did not say, but the celebration was dynamic and almost overwhelming. The name of Emil Kraepelin was hardly, if at all, mentioned—as if Kraepelin belonged to another era, long dead and buried. Yet, only a few months before, the hundredth anniversary of the birth of Kraepelin had been celebrated in Munich. Kraepelin was only three months older than Freud, which hardly makes him a man of a generation before Freud. Yet the apparent relegation of Kraepelin to an older generation and of Freud to a newer one has become a sort of tradition in psychiatry, particularly in American psychiatry. One wonders why. Kraepelin became professor of psychiatry at the University of Dorpat (in 1886) in the same year that Freud entered private practice. Yet while more advanced in his academic position, Kraepelin's true and original productivity began in 1896 when he formulated his concept of *Dementia Praecox*, whereas Freud's first contribution to psychopathology, "On the Psychological Mechanisms of Hysteria (preliminary communication)," appeared three years before, which would make Freud a sort of scientific elder of Kraepelin. Freud could also be considered the scientific elder of Eugen Bleuler, who was eleven months younger and whose *magnum opus* did not appear till 1911—the second volume of Aschaffenburg's *Handbuch* entitled "*Dementia Praecox—Die Gruppe der Schizophrenien*."

It is obvious that the three great men

¹ Delivered at the 113th annual meeting of The American Psychiatric Association, Chicago, Ill., May 13-17, 1957.

² Address: 33 East 70th St., New York 21, N. Y.

whose names come to everyone's mind whenever modern psychiatry is being discussed were actually contemporaries, and it requires some historical and psychological analysis in order to understand why one of them is considered "old" and another "new," and why the one in the middle (I have in mind Bleuler), while known all over the world for having introduced the new term "schizophrenia," remains a comparatively obscure figure, as does also his actual concept of schizophrenia. As a matter of fact the United States, so quick to respond to and to utilize anything new, waited over thirty years before Bleuler's volume on the schizophrenias was translated into English. Yet Bleuler was a sufficiently well-established psychiatric personage to be one of those who upon the invitation of Adolf Meyer came to America to participate in the exercises opening the Phipps Clinic in Baltimore. It was there that he offered American psychiatrists his paper on Autistic Thinking.

It would be rather a platitudinous thing to say that Freud's revolution in the field of psychopathology was the greatest known to us since the sixteenth century. It would be rather superficial to observe that Freud's greatness was responsible for the crowding out of our otherwise rather fresh memories of Kraepelin and Bleuler. Revolutionary and great as Freud unquestionably was, it is somewhat puzzling to observe that Freud, who disliked America so thoroughly and so openly, seemingly eclipsed Kraepelin who was known to many in the United States personally and sympathetically, and at least overshadowed Bleuler who was known to many Americans and who sent his son, now his successor to the chair of psychiatry in Zürich, to an American mental hospital for postgraduate studies. Moreover, Freud's own contributions to clinical psychiatry were secondary if not indirect or minor. For many years Freud admonished his followers to be satisfied with the treatment of neuroses and to keep away from psychoses. Clinical psychiatry was not Freud's forte.

It would seem therefore that the overemphasis on Freud, to the point of apparently neglecting the memories of Kraepelin and Bleuler, must have been due to circumstances not directly connected with clinical psychi-

atry itself. Apparently the cataclysmic changes brought upon the world by Hitler and the subsequent World War II were in no small degree responsible for the paradoxical turn of some of the external trends of American psychiatry. The great centers of psychoanalytic, Freudian teaching in Berlin, Vienna and Budapest were annihilated; the British Freudian center, despite the physical presence of both Freud himself for a while and Anna Freud, was temporarily stunted by the blitz over London. A displacement of psychoanalytic forces occurred, like an elemental rolling of intellectual and scientific waves. Many if not the majority of Freud's co-workers old and young reached the shores of the United States, and as a result America became the largest and strongest center of Freudian psychoanalysis.

To deny that this resulted in a great contribution to American psychopathology would be foolish and ungrateful, but to overlook some of the negative aspects would be just as foolish. Already in the early 'twenties Eugen Bleuler was moved to state that, unlike the earlier work of psychoanalysts, the later psychoanalytic writings were based more on theory than on clinical observations. This particular aspect of psychoanalysis became more pronounced than was good for clinical psychiatry. At the turn of the century August Hoch, the successor of Adolf Meyer in the New York Psychiatric Institute, John T. McCurdy and others sought to utilize psychoanalysis in the service of clinical psychiatry. It is to be noted that not only were these beginnings of American psychoanalytic psychiatry not mentioned in the course of the Freud centenary celebration but, were it not for the solitary voice of Karl Menninger, the name of Brill, to whose efforts we owe the formation of the section of psychoanalysis in The American Psychiatric Association, would not have been even mentioned, as would not the name of William A. White, the president of The American Psychiatric Association who was the first to put the name of Freud in a presidential address.

Perhaps it is just as well that the centenary of Freud's birth was so celebrated, since it thus helped to remind us of those whom we had forgotten in that singular

manner with which some of us are prone to neglect our own history; for the history of clinical psychiatry in America as elsewhere is intimately connected with Kraepelin and Bleuler, to both of whom Adolf Meyer, for so many years the dean of American psychiatry, was so close.

Perhaps it would be best for all concerned, and certainly for the accuracy of the historical perspective, if we looked upon this mighty psychiatric triad as a unit rather than a divided group of three, divided within itself and intrinsically. If we assume even for a moment this unitary view, the perspective will at once become clear. Kraepelin was the academic man, the laboratory man, the library man, the school man, the lecturer, the systematizer. The tradition from which Kraepelin came and which he continued was the Neo-Hippocratic tradition. The individual neurotic or psychotic was of comparatively little interest to him. He looked for that which could be considered common to this or that group of patients, with little regard for the individual. It was a search for the common denominator, for the representative clinical entity.

Since the days of Sydenham, Felix Plater and Haslam, those interested in psychopathology had leaned toward philosophic improvisations or, if they wanted to remain on the solid foundation of medicine, had looked for various mental disease entities. All three, Kraepelin, Bleuler and Freud, came from the neurological laboratory, and all three for a while equated psychopathology with neuropathology. While Freud worked in the laboratory of Brücke, Kraepelin and Bleuler worked in the laboratory of Gudden. To put it in the words of Manfred Bleuler, "His (Eugen Bleuler's) contemporaries were interested in reducing mental disease to cerebral pathology. The favorite instrument of the scientific psychiatrist was therefore the microscope, the favorite object of investigation was the cerebral microscopic preparation."³

Kraepelin served well the Hippocratic tradition in psychiatry. Yet Kraepelin, steeped as he was in the purely neuropathological bias of which Griesinger was a

good example some half century before him, lacked the clinical flair, the purely human, pulsating, responsive interest in the patient or the individual. And toward the close of the nineteenth century the interest in the human being as a functioning unit, as a person, was becoming pronounced in many a field. In psychiatry this interest in the human in man is reflected in two variants: one in Freud, the other in Bleuler.

Freud actually never abandoned his neuro-anatomical training and his microscope. He looked into the unconscious of man and its dynamics, but he did it all in a passionately impersonal way. Freud remained the strict rationalistic traditionalist while studying the most irrational in man—his passions and their power. This is perhaps the reason that Freud seemed always so close to the solution of the mystery that was man, yet always so far removed from that solution because psychological mechanisms and their integration are unable of themselves to reveal to us man's existence in its full complexity and meaning.

On the other hand Bleuler, one of Freud's earliest friends, was from the beginning fascinated with the problem of man as he functions, regardless of whether he might be considered healthy or ill. Bleuler really cared little for classifications and definitions of clinical entities. He was aware that there is no proper definition of illness in medicine, and still less in psychiatry. Mental illness, he said, is an illness of a sociological nature; it cannot be defined, but it is easily understood what we mean by "mentally ill" and "mentally healthy," as we understand the words "warm" and "cold" without being able to define them.

As Bleuler's son Manfred puts it, Eugen Bleuler

never denied the importance of neuroanatomical research. . . . But more and more was he fascinated by the conviction that mental disease does not put a stop to the psychological processes on which we live; in a modified manner the mentally sick, like the mentally healthy, have their cares, their needs, their expectations and hopes, of which they tell us even though they do it in a pathological manner.⁴

In other words Bleuler, capturing the first intuitions of earlier Freudian trends, looked

³ Gestalter Unserer Zeit. Bd. 4: Erforscher des Lebens. Oldenburg, 1956, pp. 110 et seq.

⁴ *Ibid.*, p. 110.

into the ideational and affective content of his patients. "In the place of neuroanatomy came the actual *meeting* of the patient's personality, and instead of the microscope (the chief instrument) came human speech."⁵ This is as far as I know the first approach in clinical psychiatry which one may rightly call by the modern term "existentialist."

It is ever more and more fascinating to discover how history always finds its man. The Hippocratic tradition in psychiatry is unthinkable without its being followed by the school teacher, by the methodical professor, by the bookman and laboratory compiler—a Kraepelin. It is impossible to imagine the discovery and the unmasking of the unconscious without imagining a restless, almost solitary mind plumbing the depths instead of mapping out the great open spaces, a mind both bold and secluded, perseverant rather than elastic, a single-minded mind whose concern is more his own idea than the mystery that is man. Freud—the anxious intellectual, the intolerant libertarian—was this kind of mind.

It is difficult to imagine an existential approach to man in sickness and in health without imagining a simple man who cares more about what you say and feel than what you might be or what your liver would look like under an oil immersion lens; a man who likes people and who likes to live with people; who wants to speak and hear the language of simple folk and watch them and observe them plainly, simply, without flight into a fantasy of improvised imagery and without reading into a fellow human being that which he is not. It requires a modesty of spirit and humility before that which is living. Eugen Bleuler was this kind of man and this kind of mind. Academic distinctions, which came so easily to Kraepelin and to which Freud so fervently and anxiously aspired, meant rather little to Bleuler. He lived with and for his patients, some 850 of them while he was in Rheinau; these patients as well as the attendants called him Father—although he was only 29 when he joined them as the head of the hospital, and only 41 when he was called to Burgölzli to succeed August Forel and become professor of psychiatry in the University of

Zürich. He responded to this call primarily because he wanted to be closer to his parents who began to show signs of aging, closer to the place where he was born, the village of Zollikon in the canton of Zürich. There he came to work and to teach, there he stayed after he was pensioned, and there he died in 1939 at the age of 83.

Bleuler was a close friend of Kraepelin, and he was in correspondence with Freud till two years before their respective deaths. It is not that Bleuler occupied some "middle ground" position between Kraepelin and Freud—his was rather a simple, human position. Freud once remarked with characteristic asperity that Bleuler introduced the term "ambivalence" as if implying that it was Bleuler's own ambivalence toward psychoanalysis that led him to the creation of the term. It would perhaps be more correct to say that Bleuler thus anticipated Freud's discoveries of the various polarities in the psychological structure of man.

Bleuler was as direct and matter-of-fact as the simple people of his native village, and he neither minced words nor engaged in polemical rhetoric. One of the many examples: "A critic," writes Bleuler, "says that in the beginning I was formally devoted to the old theories of Freud, but that then I dropped some of them. He is mistaken."⁶

It would be rather a lengthy task and, since the English text of "The Group of Schizophrenias" has now been published, it would be rather repetitious to try to recapitulate Bleuler's views on schizophrenia. Even though he is best known for his description of schizophrenia, Bleuler's place in the history of psychiatry is due preeminently to his fundamental, existentialist orientation which is also reflected in his formulation of schizophrenia. The term "existentialist" as used here ought to be understood in its direct and simple meaning. It has little to do with the existentialist philosophy of Jean Paul Sartre, which is essentially nihilistic, or that of Heidegger, which is more confusing than profound but essentially non-psychological, or the too abstract, even though more psychological, ex-

⁵ *Idem*.

⁶ Das Autistisch-Undisziplinierte Denken in der Medizin und Seine Überwindung. 4th ed. Berlin 1927.

intentionalism of Karl Jaspers. Bleuler's approach was strictly observational and he avoided being involved in any philosophizing. He looked for the solution of the riddle of that which is psychological and he seems to have been inclined more toward a positivistic point of view, yet without losing contact with the actual human being. It is worthwhile recording that the psychological, the psychic, "the psychoid" as he called it, intrigued him to the very last moment. On his death-bed he was busy putting together various notes he had made for the preparation of a book to be entitled "The Soul of Plants." He lay there slowly writing till the pencil dropped out of his weakened hand as he passed away.

One is justified in saying that he was a lifelong seeker after the truth, particularly the truth about man. He was not a fanatic of any special theory, or a devotee of some favorite set of concepts, nor was he an eclectic. In his quiet way he took life and people and events as they came. This does not mean of course that he was a cold, dispassionate empiricist. He was a teetotaler, for an instance, and a passionate one. His heart would not rest as long as Switzerland showed the highest rate of alcoholism in Europe, if not in the world. Directly connected with his fervent loyalty to human beings was his devotion to the Swiss dialect. At first one might mistake this for a kind of exaggerated patriotism, but it was not this. In order to live and understand people you must speak their language, not in this case the language of the cultivated, intellectual, "high" German but the simple dialect of the peasant, the little man of his canton of Zürich.

It was this simplicity and directness of the little man, whether worker or peasant, that Bleuler loved. Bleuler himself was of this simplicity and lived by it. This is apparently one of the reasons why he was so opposed to that thinking in medicine and psychiatry which he called "autistic thinking"—a form of thinking more related to spontaneous, wish-fulfilment ideation than rational, realistic thinking. In 1919 Bleuler devoted a book to this subject, and he entitled it "The Autistic-Undisciplined Thinking in Medicine." It went through four edi-

tions, the last one appearing in 1927. The book is a keen and sharp indictment of the medical profession for its wish-fulfilment, unscientific thinking, a type of thinking which perverts the very art of healing and the very spirit of medicine. Bleuler shows here that he is a master of direct language which is both clear and bold. Thus in discussing the question of degeneration, which was introduced by the French psychiatrist Morel, Bleuler says:

When we read: the patient on the mother's side comes from a very old family, on the father's side from a younger one—well, I understand quite well what the writer wants to say about the characteristics of the old aristocratic family and the upcoming family of the father's side, but the whole conception is false.⁷

With similar directness he speaks in a footnote added in 1927.

It would be quite timely finally to stop the battle as to whether schizophrenia is a disease entity or a "real" disease. If the idea is really not clear yet, then one might at most discuss to what extent and in which sense the concept [of schizophrenia] unites certain things that belong together, and then one could consider whether this type of unity serves the purpose of our conception or whether it is useful. The concept "fish" designates a unity; that of "mammal" does the same. The concept "whale" is also a unit, but of a different order. There was a time when the whale was considered to be a fish. If now we were to consider animals from the standpoint of their method of locomotion, the whale would become a fish all over again.⁸

This is the language of a man who does not set high store in purely conceptual thinking. To Bleuler, concept apparently must be an expression and serve the needs of reality.

This word "reality" may be easily misunderstood here. During the last thirty years it has been used both as a philosophical and a psychological term, and at times to the detriment of clarity both in philosophy and psychology. Unfortunately, the word "reality" has no synonym in the English language. It has been in use for over four hundred years, and we do not possess in our language a single word that would be the proper equivalent of the German term which Bleuler used, namely: *Wirklichkeit*, which means not so much "reality" in the broad sense of the term as "real existence." It is

⁷ *Ibid.*, f.n. p. 61.

⁸ *Ibid.*, f.n. pp. 59-60.

the relation of the individual to his own existence and to the existence of other people and things that in the view of Bleuler mattered in the life of man.

That is why Bleuler's vision was focused not on the mental illness called Dementia Praecox, an illness which was supposed to have its own course and its own outcome, as if it were something having its own existence within a given individual who happened to be the victim of it or affected by it. Bleuler was primarily interested in the manner in which the schizophrenic *lived* his own life in relation to what is designated as *Wirklichkeit*.

It was therefore important to Bleuler to bring together all those psychopathological manifestations which showed a certain discrepancy between the various functions of the personality, a certain discrepancy between the affect and the content of thought, a certain discrepancy between the word and the deed, a certain discrepancy between thought and actuality. It is these discrepancies that led Bleuler to invent the term "schizophrenia," the splitting of those psychological functions of man which are usually integrated into one whole. Hence, Bleuler's concepts of ambivalence, affectivity, autistic thinking, dereistic thinking and syntony which gained general recognition and usage. Hence, too, Bleuler's assertion as early as 1907 (although it was not published until 1911) that

if a given patient wants to stand on his head, or to break windows, or to tear his clothes, etc.—all this is not a result of the process of illness (*Krankheitsprozess*) but a reaction (I mean a psychological reaction) to inner and outer *experiences* (psychological).⁹

It is remarkable to what extent Bleuler remained inwardly true to his respect for the unitary quality, for the indivisibility of the human person. In this respect he stands in intimate relationship to Freud, whose greatest contribution to the knowledge of man was just this; from the scientific, and not only from the philosophical and spiritual, point of view, man is one in health and in illness even when he manifests himself to us as "split," as schizophrenic.

It is impossible to say whether the priority

in this respect belongs to Freud or Bleuler; it is most probable that both were moving in the same direction, and it would seem that both were drawn toward one another by the discovery of the richness and awesome power of the unconscious. Despite external appearances to the contrary, I am inclined to believe that Freud had more Bleuler in mind than his assistant Carl Jung, when he said that most of his followers and collaborators came to him via Zürich. Abraham, Brill, Jones and many others were exposed for various lengths of time to the influence of Eugen Bleuler in Burghölzli. Bleuler was one of the first contributors and coeditors of the *Jahrbuch für Psychoanalytische und Psychopathologische Forschungen*.

To Bleuler, schizophrenia was a complex gathering of psychological reactions. Here we come upon one of the most striking paradoxes in psychiatric clinical thinking. He stated without ambiguity that "At present, the only therapy of schizophrenia to be taken seriously is the psychological therapy."¹⁰

Yet Bleuler believed that after all is said and done schizophrenia was an organic disease. Freud, as is known, in a similar way stressed the psychological aspects of mental illness, but hoped that some day some physico-chemical agents responsible for the illness would be found. On the other hand Adolf Meyer, more strictly of the biological bent of mind, thought schizophrenia to be of psychological origin. This point was one of the most important in the scientific dissension between Eugen Bleuler and Adolf Meyer. However, Bleuler gravitated toward the psychological without separating it from the organic. He even wrote a little book on "The Psychoid as the Principle of Organic Development." It was published (in German) in 1925.

Bleuler seemed to be closer to vitalism and to Lamarck than he himself appeared to know. As a result he is one of those who, like Freud, was inclined to avoid drawing a clear line of demarcation between the normal and the pathological in the psychological functioning of man. He was more interested in what the given person did than with what kind of illness he was possessed of. That is why he was opposed to the idea

⁹ M. Bleuler. *Op. cit.*, p. 113.

¹⁰ *Idem*.

that a mere diagnosis of schizophrenia is sufficient to relieve one of criminal responsibility. He specifically stated that it is the lack of freedom of the will in a given case, and not the diagnosis of a given "disease," that should be considered the main factor whenever the problem of responsibility arises.¹¹ Traditional as this point of view might appear at first, Bleuler was in actuality rather consistent. He would not bow to mere labels, even diagnostic ones; he bowed only to human facts.

Another outcome of this abolition of the strict line of demarcation between the mentally healthy and the mentally sick was the utilization of various psychological reactions in the analysis of our social life. In this respect Bleuler, like Freud, saw the same psychological mechanisms operating in our normal social life as in the pathological life of an individual. However, there was this difference between Freud and Bleuler. Freud, as is known, equated the social organism with that of the individual, and he saw the same pathology in society as in a person. Bleuler on the other hand avoided this methodological error; he did not consider the given psychological mechanism pathological in itself, but only the ethico-sociological consequences of certain psychological trends. In other words, Bleuler remained consistently opposed to reliance on diagnostic labels, not only in clinical or forensic psychiatry but also in social psychology.

This, I believe, is one of Bleuler's greatest merits, and one of his most valuable contributions. Thus he was able to rise to great heights of moral and scientific evaluation of human behavior. As a physician he knew the sick man as few psychiatrists of his day, and perhaps of ours, did. He took his post in Rheinau—a lonely spot on the Rhine in a place that as late as 1867 was still a Benedictine monastery removed from the worldly world. There the young Bleuler started being a psychiatrist. At that time this meant that he actually had to lay aside, for most of the time, the microscope and the neuroanatomic preparations which he had learned to use so well at Gudden's laboratory in Munich, because he had to become

caretaker, housekeeper, surgeon, dermatologist, internist and most of all the gentle friend of 850 patients. Epidemics would flare up; then to his many roles and preoccupations would be added those of a public health officer. This is how one learned psychiatry in those days. The manner and the method of such learning, the hard and yet the fullest way, is reminiscent of those which were imposed by necessity upon the physicians of the institutions and retreats in the days of Philippe Pinel, and some half-century later upon the founders of The American Psychiatric Association.

Young Bleuler, not yet thirty, quickly started taking into account the failures, errors and weaknesses of his day. He jotted down his many experiences and heartaches so that some thirty years later, already a mature and seasoned psychiatrist and a professor at the University of Zürich who had seen the world (he had at that time already visited America for the first time), he wrote what might be called his brief against the medical world of his day. *Das Autistisch-Undisziplinierte Denken in der Medizin und Seine Überwindung*.

In quality of thought and intensity of feeling, this book surpasses many of his other works, not excluding perhaps his "Group of Schizophrenias." It was a straightforward restatement of what he meant by autistic thinking in our daily, non-psychotic life, and a severe indictment of our professional propensities. He did not overlook the positive aspects of medicine, but, as he said in the preface to the first edition of the book in 1919, "Here it is necessary to bring out the mistakes [of medicine]. With all that is good in medicine, this work cannot busy itself." One at once notes the tone of a pamphleteer, yet a special type of pamphleteer, an objective, impersonal one. He attacks no one by name or place; he is aggressive without being bitter and sharp, without being angry and devastating, without being really harsh. Many of the examples given in this book, many an aspect of medicine of some four decades ago, would appear to us already superannuated; science and medicine have moved fast since 1919. Yet the substance of the book is still as fresh and alive today as it was when it first

¹¹ E. Bleuler. *Das Autistisch etc.* 4th ed., p. 56 f.n.

appeared, perhaps even more alive because we know now so much more and therefore ought to know and do better.

Bleuler points out to what extent the medical profession is given to autistic thinking in its medical practice as well as in its theoretical elaborations. It is accustomed to that type of thinking which pays no attention to the dividing lines between human experiences and the verification of these experiences by looking at the actualities (*die Wirklichkeit*), and which gives up logical self criticism. That is to say, it is the type of thinking which is analogous and in some respects quite identical with the thinking we find in dreams, and in the autistic thinking of the schizophrenic who bothers as little as possible about actualities, and who thus fulfills his wishes in a state of megalomania or in persecutory trends, which is a result of his projection of his own incapacities into the outside world. It is this type of thinking that was named autistic; it is ruled by its own independent laws which depart from our realistic logic; this thinking does not seek for truth; it is preoccupied with wish-fulfillments. Accidental association of ideas, and most of all inner affective demands, take in many respects the place of realistic logic. They prevent the individual from deriving his associations from actual experience and following strict realistic logic.

Bleuler cites time and again the propensity of the medical man to believe what he wants to believe, to be motivated by economic success and therapeutic do-it-quickly methods. It is a kind of autistic empiricism in medicine that Bleuler attacks, which he calls "wearing the therapeutic necktie which happens to be the style of the moment."

While reading over the galley proofs of his book Bleuler came upon the fact that four or five years before him a booklet had appeared (already then in the fourth edition) written by someone named Bouget and called "*Quelques erreurs et tromperies dans la science medicale moderne*," and in a footnote to his text Bleuler called the reader's attention to this booklet; he remained impersonal and sought no priority rights.

Bleuler had no patience with this type of thinking in the practice of medicine.

The medical man, Bleuler believed, had no business to be the slave of "the need to feel comfortable on the part of the public"; he stressed the social and ethical demands which the medical man must impose upon himself. Bleuler raised his voice against the too generous and indiscriminate dispensing of various medicaments.

More than two centuries ago, Sydenham made the statement that the arrival of a jack-pudding [buffoon] in a small town might be more beneficial to the health of the inhabitants than the arrival of twenty jackasses laden with drugs. Sydenham was an able man and a great physician. I am deferring to the authority of his name, for I ascribe no value to scientific priorities. Sydenham did not know in his day of our modern drug industry, or he would have spoken of drug factories instead of jackasses.¹²

Bleuler considered certain experiments on rats without proper human controls a manifestation of purely (or impurely) autistic thinking in medicine. The highest form of one's relationship to reality is one's ability to state simply: This I do not know.¹³ "Careless thinking is oligophrenic and leads to error; autistic—to paranoia; our ordinary everyday thinking is a mixture of realistic and autistic trends."

As one of the examples of autistic manners, Bleuler spoke of those who fight Freud's psychology with relentless zeal, and pointed out that this psychology put the whole field of psychopathology on a totally different foundation, and that one finds this great change in the very writings of those who still believe that they have rejected Freud once and for all.¹⁴

Some of our psychiatric household terms Bleuler rejected as autistic mannerisms rather than realistic designations: so many believe that they designate something definitive by the term "psychopath"; in actuality no one has as yet established a proper concept of what a psychopath is. It is a negative designation of a general deviation from the normal. We ought not to look upon any striking characteristic of an individual as

¹² E. Bleuler. *Op. cit.*, 4th ed., p. 18.

¹³ *Op. cit.*, p. 90.

¹⁴ *Op. cit.*, p. 45.

psychopathic. Let us call him a schizophrenic, an hysteric or whatever he is; if we don't do this, then what is left is only the designation "psychopath," which tells us nothing about the nature of the deviation in question.¹⁵

With a striking boldness Bleuler pointed out the instinctive, intuitive psychological knowledge which so many medical quacks possess. Scientific medicine too was until recently in possession of this gift of intuition; unfortunately, the purely mechanical physical and chemical methods which make diagnostic work so much easier have also, however, made us turn away from the psychological.

The habit of making direct psychological observations, in the manner of a spontaneous, natural understanding of man, which even the uneducated possess, has been lost, and we behave as if we ought to defend ourselves against something mystical when we come in touch with the most important aspect of civilized man (the psychological). Psychic mechanisms are too complex for us to be able to reduce them to easily understandable and mechanically applied formulae, like chemical reactions. This is why there is a fear of the psychological in medicine.¹⁶

I may add that essentially this is still true today, despite our apparent acceptance of the psychological in medicine as evidenced by the popularity of the term "psychosomatic medicine." The general distrust of psychopathology on the part of medical men and medical students is I am afraid greater than the increasing popularity of psychiatry and the broadening of the psychiatric curricula in our medical schools would indicate.

Bleuler does seem to be still right today, more than we know. Apparently we have not yet solved the problem. It is not merely a matter of training alone. Perhaps psychiatric education must be more cognizant of the need for humanistic education, without which traditional scientific education as it is understood by positive sciences becomes, as Bleuler pointed out, an impediment in our methodological approach to human problems. The issue of integrating the subject of psychology as a humanistic discipline into the field of human knowledge, without mak-

ing psychology the maidservant and mimicker of physics and chemistry, has been raised time and again throughout the history of scientific thought; Bleuler too brought it into focus. It is this issue that remains unresolved in our present-day, post-World War American psychiatry.

As I said before, the approach which might be termed "humanistic existentialism" offers some hope, and some of the European psychiatrists are now testing it successfully both in psychotherapy and psychopathology as a theory. The name of Ludwig Binswanger in Switzerland, an offshoot of the Bleuler tradition, comes to mind in this connection.

But this aspect of the solution raises a number of new problems which were not envisaged by Bleuler. It is highly important, for instance, to avoid slipping into a sterile personalism under the guise of individualism in psychopathology. It is also highly important to learn, and we still have a lot to learn in this respect, how to talk to each other without falling into the confusion of autistic conceptualism under the cover of a terminological screen.

This problem stood before us long before Bleuler in all its acuity and urgency. Said John Henry Newman almost a full half-century before Bleuler:

No power of words in a lecturer would be sufficient to make psychology easy to his hearers; if they are to profit by him, they must throw their minds into the matters in discussion, must accompany his treatment of them with an active, personal concurrence, and interpret for themselves, as he proceeds, the dim suggestions and adumbrations of objects, which he has a right to presuppose, while he uses them, as images existing in their apprehension as well as in his own.¹⁷

There is more than an appeal for semantic clarification in these rather contemplative, mid-Victorian words. It is the same appeal as Bleuler made when he insisted on direct human observations, through instinctive (intuitive) contact with your fellow men; I could call it an appeal for truly existential cooperation, taking all the time into account the living individual before you.

In this respect it is more than a coinci-

¹⁵ *Op. cit.*, p. 64.

¹⁶ *Op. cit.*, p. 18.

¹⁷ *Grammar of Assent*. Image Book. 1955, p. 37.

dence that the atheistic friend of Bleuler, Sigmund Freud, called the highest achievement of normalcy work and love, and that the scientific, observational empiricist Bleuler considered work-therapy (*Arbeitstherapie*) as the cornerstone of treatment. Here again I must point out that the term "occupational therapy" used by the English-speaking psychiatrist does not convey exactly the meaning that Bleuler had in mind. The words "occupational therapy" might connote a form of diversion, a form of "getting away from one's self" as the expression goes, while work-therapy as Bleuler described it in his book on schizophrenias meant to him explicitly the awakening of the autistic person to true productive creativeness, to overcoming his autistic proclivities.

It is this concern with the person in man that makes Bleuler stand out as one of the truest representatives of humanism in clinical psychiatry. To put it again in the words of Newman, purely formalistic considerations make man "attenuated into an aspect

or relegated to his place in a classification." Bleuler had no stomach for such attenuation. Therefore he stated: "I feel ever so much obliged to pay attention to the interests of the community and to follow the order of the State—without however ever losing sight of the individual." In the light of this careful avoidance of the sorry business of "attenuation" of the human individual, it is fitting to observe that as a result of many years of hard work in a mental hospital and hard thinking about man in sickness and in health, Bleuler came to the conclusion that "the special task of the educational influence of a mental institution is the habituation of the patient to be *free*" (*italics mine*).¹⁸

Thus the neutralistic Swiss in Bleuler ever strove to preserve the individual in man and, what is most important, his freedom—a freedom which neither state nor institution might impede. To Eugen Bleuler illness, the great constrictor of human freedom, should be treated in the service of true inner and outer freedom.

¹⁸ M. Bleuler. *Op. cit.*, p. 114.

RESPONSE TO FELLOWSHIP LECTURE ON EUGEN BLEULER

E. E. KRAPP, M.D.¹

In the brilliant and wise lecture with which Gregory Zilboorg has commemorated the one-hundredth anniversary of Eugen Bleuler he has rightly compared the great Swiss psychiatrist with the two outstanding men whose centenaries the psychiatric world celebrated in 1956: Emil Kraepelin and Sigmund Freud. He has also reminded us that Bleuler was in a way standing between Kraepelin and Freud, adhering in fact to Kraepelin's nosology and Freud's psychopathology at the same time.

I am afraid that in the minds of some the second proposition risks invalidating the first. "Between Kraepelin and Freud" . . . does that not sound like lukewarm eclecticism? And do eclectics—even the most distinguished amongst them—ever rank together with what Schopenhauer called the "*originaldenker*," the original thinkers? It would not be difficult to enlarge upon this argument. No doubt: it was Bleuler who coined the term "schizophrenia"; but was it not Kraepelin who laid the clinical foundations, and did not Bleuler himself recognize the fact in calling his famous monograph *Dementia praecox or the Group of Schizophrenias*? It is true: the terms "ambivalence" and "complex" were first used in the Burghölzli; but could they have been found if Freud had not seen the corresponding phenomena first? One might even use Bleuler's own words (in the preface of the monograph) that "the whole idea of dementia praecox originates with Kraepelin" and that in respect of Freud's ideas he was only responsible for their "application" to schizophrenia.

Let me answer the sceptics right away and tell them that Bleuler's genius lay in the field of "Ethos" rather than in that of "Logos." He could "stand between Kraepelin and Freud" and still remain original because he approached the problems of man not so much

with intellectual curiosity as with a feeling of human fellowship. As he observed his patients not as specimens to be dissected and filed but as persons to be respected and helped he had an immediate understanding for them which allowed him to give to the realities which Kraepelin and Freud had painted something like an additional dimension.

Of course, neither Kraepelin nor Freud were coldly curious or lacked all feelings of human fellowship; but it is hardly unjust to say that both were more scientists than physicians. Kraepelin, for instance, wanted to devote his life to experimental psychology and became a psychiatrist only because he had to earn a living. He always considered his psychological experiments his most valuable contributions to human knowledge, and as to his interest in therapy I can bear testimony that it was completely negligible. As to Freud, he admitted that he had "never really been a doctor in the proper sense," but he became one "through being compelled to deviate" from his original purpose (of becoming a physiologist). He regretted that his restricted material circumstances prevented him from taking up a theoretical career, and Ernest Jones recalls in his biography that Freud expressed "as far back as in 1910 . . . the wish with a sigh that he could retire from medical practice."

It is noteworthy that Bleuler's attitude was quite the reverse. When at the age of 29 he was appointed Superintendent of the Asylum of Rheinau he concentrated from the very beginning on plain doctoring, and so enthusiastically did he devote himself to this task that he went far beyond psychiatry into the field of general practice, attending not only the medical needs of his patients but also those of his personnel and of the villagers of Rheinau and going in this endeavour as far as actually arranging for a weekly operating session at which he performed quite alone even major operations. He became in fact a family doctor not only

¹ Address: 16, Parc Château-Banquet, Geneva, Switzerland.

in the usual sense of the word, but also in being a father-image for everybody around him, patients as well as nurses and attendants. He ate with his flock, he worked with them, he arranged their parties, he shared in their amateur theatricals, sometimes he even administered their savings accounts, and so completely did he identify himself with his activity in the field of what today we would call social psychiatry that he was in the middle of planning the transformation of the village of Rheinau into a psychiatric colony of the Gheel type when the Zurich Government surprised him in 1898 with his appointment as Professor of Psychiatry and Director of the Burghölzli.

For the European scientist there is no greater satisfaction than obtaining "the Chair." Kraepelin did not really come into his own until he had been appointed Professor in Dorpat, and Freud resented it bitterly that the antisemitism of the Austrian authorities made it impossible for him to become a full professor. For Bleuler it was apparently a sacrifice to accept the professorial gown. This is at least the opinion of his son who, in response to a question of mine, told me recently: "After his moving into the Burghölzli . . . the possibility of fully giving himself to the life of his patients did not exist any more. All through his life he felt this painfully, and I believe that since I have known him there was always a certain resignation in his attitude towards the patients. He would have liked to come as close to them as before but it was not possible any more."

Of course, this does not mean that Bleuler actively disliked his professorial job. Somebody who abhors teaching cannot write a text book of so high a quality as his. Possibly at the beginning he was not a very brilliant professor. If one hears that in his first years in Zurich he sometimes based his lecture on a few pages torn out of a current manual one cannot be entirely out of sympathy with the Faculty of Medicine which had opposed his appointment. Later on his teaching performance was certainly more than adequate, and we have every reason to believe that he was quite happy with having the possibility of helping his students in their quest for knowledge. It is probable, how-

ever, that he never ceased to consider it more important to help his patients in recovering their health. We know after all that when, as a high school student, he decided to become a psychiatrist, he did so because he was aware that the peasant population of his canton (to which his own family belonged) was not too happy with its mental patients being in the hands of men who like Griesinger, Hitzig and Gudden, were not familiar with the "Züri-Tütsch" and because he wanted to satisfy the desire of his people to have not only erudite savants but also a real doctor. We have, moreover, the conclusive evidence of Bleuler's research orientation, the development of which can only be understood if one takes into account that as Ludwig Binswanger puts it: "The primacy of his life was practical reason" in Kant's sense.

Bleuler's fame is essentially based on his work on schizophrenia, and his most important contribution in this field was undoubtedly the profound analysis of the dynamic psychopathology of the schizophrenics. But originally the scientific interests of Bleuler had been very far removed from psychology proper. Apart from a few studies on the biology of the criminal in Lombroso's sense nearly all the papers he published in the first twenty-five years of his professional life were on neurophysiological, neurological and neuropathological subjects, and it would have been difficult to guess at that time that this young organicist was destined to become one of the most outstanding medical psychologists of his generation.

In my opinion it is quite evident how the change in Bleuler's research orientation came to pass. In the decisive years of his scientific evolution, in Rheinau, the vast majority of his patients were schizophrenics. His medical Ethos obliged him to make every possible effort to cure them. And in this connection he discovered not only that (using now his own words) "except for the treatment of purely psychogenic disorders, the therapy of schizophrenia is one of the most rewarding for the physician," but also that "at the present time, the only type of therapy that can seriously be considered for schizophrenia as a whole is the psychic method."

Since then we have of course learned seri-

ously to consider somatic methods too. There is no doubt that Bleuler, if he were alive today, would very much approve of this. The last time he participated in the discussions of the Swiss Society of Psychiatry he commented in fact on the chances of bodily therapy and said that in respect of the "cardinal question of finding the point where one could attack" he could only hope that the younger generation would be more fortunate than his own. But the unquestionable advances made in the field of somatic treatment have by no means diminished the need for a reasonable employment of the "psychic method." Insofar as they help the patients to regain a better contact with the outside world they have even increased it. Moreover, clinical experience teaches us that schizophrenics respond in a favourable way to the very fact of being cared for, and in making use of this reaction we are certainly very close to the "psychic method" Bleuler was employing.

Bleuler was indeed very far from recommending the psychotherapy of schizophrenia as we understand it today. He was convinced that "the symptomatology of the disease is dominated by the complexes," but he did not see how it could be influenced from that angle in a systematic way. "The only way," he said, "is to offer chance itself a great many opportunities so that it may seize one of them. If this is done at the right moment, a good deal can often be accomplished." Thus it has to be understood that he saw the most important aspect of occupational therapy in that it "offers the attendant personnel almost the only opportunity for close contact with the patients." In other words: his goal in occupational therapy was not to keep the patient busy, but to get near him and to give him the warming feeling of being cared for. Nothing is more typical of his approach than the little story he himself tells in his monograph: "In one of the hospitals I encountered a violent woman patient who was regarded as so dangerous that not less than four attendants at a time were permitted in her room. On Christmas Eve I took this patient along to the party at the hospital. On New Year's Eve she introduced herself as a singer; some weeks later she was released." But perhaps I should also report a story

which I heard from one of his pupils: Walking through the Burghölzli with his assistants, Bleuler was once shown some new material upon which very destructive patients could sleep completely naked. He immediately undressed and lay down on it because, as he said, "I cannot oblige a patient to lie on this stuff if I do not know whether it is adequate for a human being." Clearly, Bleuler's psychotherapeutic practice makes very good sense from the point of view of psychoanalytic theory, but the point I want to stress here is that it was practical far more than pure reason that allowed him to penetrate so deeply into his patients' unconscious.

It would not be difficult to show also in other spheres to what extent Bleuler's existence centered around his ability and his desire to respect, help and understand his fellow beings. I think it is a characteristic reflection of his own genius that amongst his pupils he had outstanding personalities as different from each other as for instance, C. G. Jung and André Repond, Karl Abraham and Eugène Minkowski, Abraham Brill and Ludwig Binswanger, Hans W. Maier and Hermann Rorschach to mention only a few. I cannot resist the temptation to tell in this connection an anecdote which shows very plastically how little authoritarian he was in his relations with his collaborators. When Françoise Minkowska, Eugène Minkowski's brilliant wife, was a young resident at the Burghölzli, she once showed her indomitable temperament by loudly criticizing Bleuler's way of examining foreign students. When Bleuler heard of her comments he called her and asked her to sit in an adjoining room next time he had to examine a foreigner and then to tell him in a concrete way what errors he might have committed. André Repond, whom I recently consulted about Bleuler's attitude in respect of his assistants, called it "very fatherly and full of understanding," and the little story I have just related is certainly very apt to show this aspect of his interpersonal behaviour. It is perhaps even more important, however, that Bleuler was able to act not only as an understanding father, but, if I may say so, also as a helpful older brother. All his pupils

praise, in fact, his preparedness to enter into a scientific discussion on a footing of complete equality even with his youngest residents, and Ludwig Binswanger responded to my query in this respect by calling Bleuler's attitude "democratic in the highest sense." This is a very interesting formulation on which I should like to make a few comments.

Bleuler came from Swiss peasant stock; in other words, he was the true son of a people justly famous for having developed a type of society in which the democratic equality of rights and duties is based on a deep respect for rugged individuality and on a century-old tradition of mutual assistance in case of need. I do not think that it detracts

in any way from our admiring appreciation of Bleuler's greatness if we discover in his genius the principal traits of the genius of his nation. I should say that in my opinion it even increases it just as I believe it heightens the stature of a Lincoln that we can consider him the ideal type of an American. I do not know whether this kind of genius can only grow in a democracy, but I am sure that it is nowhere better understood and better loved. Therefore it seems very fitting to me that Bleuler's centenary should be commemorated precisely in these United States. The American Psychiatric Association ought to be congratulated on its intuition in choosing this subject for this year's Fellowship Lecture.

MURDER BY ADOLESCENTS WITH OBSCURE MOTIVATION

A. WARREN STEARNS, M.D.¹

In the early days of society, treatment of crime was entirely instinctive. This is reflected in such sayings as "An eye for an eye and a tooth for a tooth," "He who sheddeth man's blood, by man shall his blood be shed," and so forth. The motive was revenge, and it depended upon an instinctive reaction. Later on, as man became less savage and more a man, the theory of the deterrent effect of punishment gradually appeared. It postulated that society could be immunized against crime through a fear generated in all hearts that, if they sinned, they would suffer. Still, they sinned. E. B. Wilson has said, "Punishment is no good after you are sick. It may be a good way to condition children."

Latterly, there has developed an interest in trying to do something with individual offenders. This was at first called *correction*, later *reformation*, now *rehabilitation*. During the past century, and more particularly the past half-century, with the development of psychiatry, there has also developed an interest in the makeup of the individual offender. Psychiatrists have dabbled in criminology, but on the whole few serious systematic studies have been made. For the most part, psychiatrists and those working under their direction have tried to classify criminals within the categories set up for the classification of insanity. This attempt has been largely unsuccessful. It has resulted in a much hypertrophied group of personality disorders, which has included so many diverse elements that it is hardly fit to be called a group at all. Originally, its use was confined to those individuals who from early childhood had shown deviations in development and behavior. Latterly, it has been applied to cases where one single act was all that there was to go upon without any attempt at picturing a clinical entity. It has seemed to the writer, after many years of contact with crime and much reflection on the matter, that it ought to be possible to establish clinical syndromes in criminology

comparable to those in medicine, although not in any sense identical. When physicians classified certain types of sickness as fevers, it was quite an advance. It at least brought cases together which ultimately turned out to be infectious. When the group was broken down into measles, scarlet fever, diphtheria, typhoid and so forth, it laid the way to further understanding and, as it turned out, specific treatment.

In the opinion of the writer, if psychiatrists are to seriously undertake a study of criminology, they must first develop some sort of classification. It is too much to hope that this could be developed full-grown, giving the type of diagnosis and treatment now available in medicine, but at least a start can be made. With this in view, a series of cases is presented with the suggestion that they represent a clinical syndrome comparable to some of those in medicine.

It has long been recognized that profound changes take place in the human body during the period of adolescence. It has also been recognized by some, although not admitted by all, that these changes are frequently associated with alterations in behavior. A substantial portion of students have associated these alterations in behavior with changes in body chemistry, although latterly there has been some tendency to attribute them to environmental pressures or deficiencies. It is not my purpose to debate this matter, for the issue is not important in the thesis which I hope to develop. Enough to identify adolescence as a period when extraordinary things may take place: these may be the arousal to great events; the simple revolt from parental or adult control; or suicides without motivation, which I have recently published (1, 2). Murder is comparatively rare at this period. In my previous study, only 2% were under 21 years of age (3).

I wish to describe briefly a group of adolescent murders for which no motivation has been found and which seem to have certain elements in common. These cases further illustrate the value of a categorical arrangement of criminals. I have done what I could

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to conceal the identity of the cases for obvious reasons but have tried not to mutilate the picture too much.

CASE 3428.—This is a 15-year-old boy of excellent reputation. His mother was psychotic, and he lived with relatives. He was a student in junior high school, and there is nothing in his record to indicate that he was anything except a fine specimen. He had been attentive for some little time to a 14 year old girl, a schoolmate. They had been together more or less, had kissed on at least one occasion, but there had been no overt sexual experience. They rode out to a ball game on his bicycle. She was scantily clad and sat facing him on the handlebars. In the early evening they started home. After going a short way, they stopped at a park; she dismounted, he remained astride the bicycle. He drew a pistol from his pocket, a recent acquisition to his collection. His grandfather was interested in guns and occasionally sent him a specimen. He had carried it for some time, and at least on one occasion he had fired it. He showed it to her. She said, "Don't shoot me," whereupon he pulled the trigger 4 times, the bullets passing through her chest, one through the aorta, killing her instantly. He rode away for a while, and then came back to give himself up.

Although every possible theory was exploited, no motive was ever found. He said he didn't know why he did it. It was an impulse. Repeated examination revealed nothing extraordinary about his personality. Dr. Abraham Myerson, who studied him at the time, felt that he was an incipient case of dementia praecox. He and I were employed together and talked over the matter at length. In general, his diagnosis of incipient dementia praecox was based on the supposition that there must be some profound pathological process going on to account for the crime. The boy pleaded guilty to second degree murder and received a life sentence. Upon admission to the prison, he was again thoroughly studied and was considered a model American boy. The only deviation he showed was slight stammering. About 2 years after his admission to the prison, he cut his elbow with a razor blade, leaving a note stating, "This is a suicide. May I be buried beside whom I now join." At the bottom of the note he had left his fingerprints in blood. He was sent to a hospital and in a few days was entirely well. There has been no repetition of this depressed episode. In the last 10 years, he has acquired considerable formal education, developed great talent in art, and is considered to be a healthy, normal young man. A recent review of his case shows an I.Q. of 112. There have been no conduct infractions during his 12 years in prison, and psychiatrists state: "There was no psychiatric process present. Does not appear schizophrenic."

CASE 3811.—This is the case of a 13-year old boy with excellent reputation. It was generally said that he was one of the last persons who would be suspected of doing wrong. He was a newsboy and went to the house to collect for the papers. He re-

ceived the money and started along; then he turned back, why he knew not. He knocked at the door and as the 41-year-old victim came to let him in, he asked for a drink of water. He stepped inside, she turned to get the water, and as she passed it to him, smiling, he hit her on the head with a milk bottle, knocking her to the floor. She was unconscious but apparently not dead. He slipped a laundry bag over her head, pulled up the strings and strangled her. She was clad in white shorts and a halter only. He stuck a knife into her abdomen, saying that he had been told that, if a person was dead, he would not bleed. He also wrapped a towel around her neck. He then ransacked the house taking nothing, returned to a group of boys playing ball, and then went home. No one noticed any change in him whatsoever. Four days later, the victim's daughter coming home found her body on the floor. Persons had seen him go to the house; he was questioned and freely admitted his guilt. He assigned no motive, and no motive was ever discovered. He said an impulse came over him. He pleaded guilty and was sentenced to prison for life. During the 10 years of his prison sentence, he has grown to be a very large man. His conduct has been exemplary. He has studied hard and hopes to get out sometime, although he once told the writer that, if there was any chance of his ever doing that sort of thing again, he would gladly remain in prison the rest of his life.

CASE 4828.—This is an 18 year old, whose family was in comfortable circumstances; he was bright but inattentive in school, so that he did not graduate from high school. He was attending private school where he did little or nothing. He was ardently courting a 17-year-old girl. He had his own car and was something of a traffic problem, but on the whole had an excellent reputation. He had a tear in his raincoat; went to one or two dry cleaners to have it fixed. He then went to a dressmaker whom he had seen once with his mother 2 years before. He knew where she lived, as he had driven his mother there. He asked her to repair the tear in his raincoat. This she did; charged him 50¢; he gave her a dollar bill, and, as she turned, he seized her, strangled her, killing her with his hands. He then went to the sewing room, got some cloth panties and put them around her neck and tied a very tight knot. He next went to the kitchen got a rolling pin and hit her several times on the head. He then got a butcher knife and plunged it into her heart. Then he got a piece of cloth and tied her feet together. He later stated that as he emerged from the apartment, an awful feeling came over him, "What have I done?" He was restless, uncomfortable; went home; could not stay there; went out with some girls, where he recited the whole event. The girls did not believe it, and he finally told them that it was true and that he was a murderer. Still, they did not believe it. The next day he drove about with a girl and was finally arrested. Here again, no motive was ever determined. He pleaded guilty and received a life sentence.

CASE 4878.—An 18-year-old boy from a good home with an excellent reputation killed a school-

mate. He had failed some courses in high school and was repeating. There is no other suggestion of aberrant conduct. He owned a large bayonet or dagger which he sometimes carried. On the night in question, he went out to walk. He saw his girl friend through a window, returned to his house and got the bayonet. He then went to where the girl friend was babysitting and knocked on the door. When she came to the door, he fell upon her with the bayonet, stabbing her 46 times, thereby killing her. The baby was in a crib nearby, and he stabbed him several times. He was not apprehended for several days. He was a bearer at the girl's funeral, but when accosted made a complete confession. He said he did not know why he did it. The impulse came over him. He had much psychiatric examination, being called dementia praecox, psychomotor epilepsy, personality disorder, etc. He was sentenced to death, but this sentence was finally commuted to life by the governor and council. He has shown no evidence of nervous or mental disease since his confinement, and neither has any motive for the crime ever been elucidated.

These 4 cases have certain elements in common, enough I believe to establish a clinical syndrome. The perpetrators have all been adolescent males, their reputations have all been uniformly good, the victims have all been females—two scantily clad, and the crimes have been wanton and ferocious. No motive has ever been established. When such a murder case occurs, I think it fair to assume that the same pattern will be present as in the cases above. It has been assumed quite largely that there has been gross mental disease to account for such crime. It has further been assumed that these persons should be confined for life, that there is indication of some morbid quality which would make it dangerous to ever release them. Having this in mind, I wish to pre-

sent one further case in which the victim did not die, and therefore the perpetrator received a reformatory sentence, was subsequently released on parole, and has shown no evidence of conduct disorder since.

CASE 4955.—This boy was 13 years old and in the 7th grade, having repeated the 4th. He was a non-reader; came from a very disordered family, the father having been once arrested for indecent exposure. He had shown no gross conduct disorder until the present incident. He was building a tree house in the woods near his home. His father would not get him tools, so he went to a hobby shop and stole a knife and a hatchet. The knife was in a sheath which he carried on his belt. While working on the project, he saw a girl his own age go by. He did not know her but walked out to her, and they looked at each other. She said, "I won't bite you." He said, "I won't bite you." He invited her into the woods saying he had a surprise for her. When a little way from the street, he told her to turn around, whereupon he plunged the knife into her back. She fell backward, and he grabbed her, and there were one or two slight cuts on her face and neck. Just what happened then is not entirely clear, but he was arrested and made a complete confession to the police. He is said to have told the police that he wanted to see her breasts.

He was friendly and cooperated with me. The crime appears to be the result of an impulse. We can infer a sexual motive but cannot demonstrate it. He does not show any evidence of psychosis or gross mental disease. His period in the training school was uneventful. School behavior was very good, and he made a good adjustment. He is now in high school.

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THE UNLOCKING OF WARDS IN MENTAL HOSPITALS

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The problem of eliminating locked doors in all mental hospital wards has been under consideration by psychiatrists in Britain for some years. Dingleton Hospital, Melrose, led the way and has been completely unlocked since 1949. Nottingham City (Mapperly) Hospital followed suit by opening all its wards, as did Warlingham Park Hospital more recently. The latter had only 2 locked wards out of a total of 23 for some 12 years previously, however. Warwick Hospital is also completely open now.

Nevertheless, references in the literature are scanty and the method of opening locked wards has been expounded somewhat vaguely. Little has been done in the way of controlled observation of the results of opening. Bell(1, 11) holds that a satisfactory stage of nurse-patient relationship must be reached as a preliminary to unlocking the wards and that mechanical restraint, seclusion and tube-feeding must be absolutely prohibited. He also lays emphasis upon the education of the public, and exhorts his staff to take a full part in local activities. Koltes(5) maintains that patients must be encouraged to take the attitude that the "hospital is theirs" and that behaviour will then improve and the opening of wards follow as a matter of course. This change of attitude is to be brought about by an intensive group therapy programme, constructive activity in which the patients feel that their work is not exploited and a nonauthoritative role on the part of the staff as regards the patients' everyday life. These ideas are also expounded to the visitor to Warlingham Park Hospital. Rees and Glatt(7) however describe a system of habit-training and occupation employed in a ward of deteriorated patients and report that the use of methods such as these have enabled the wards to be opened at Warlingham Park Hospital. Experience at Mapperley Hospital is in accord with this(10).

The results of ward opening are even more

vaguely defined. Bell(1) says that such a measure leads to "complete lack of tension" in both patients and staff, whereas several locked wards are retained at Netherne Hospital because the staff believe that a closed ward has a sedative value for patients with severe anxiety(5). Bell(1) quotes the case of 3 epileptics with a diminution in the number of fits after opening. He also states that wetting, soiling, destructiveness and refusal of food have almost disappeared, except on the senile wards. Even the increase in the voluntary admissions to Dingleton Hospital in the years after the introduction of open doors (and the establishment of the National Health Service) is cited as an indirect result of opening.

Both Macmillan and Bell(10) agree that the paranoid patient is less inclined to attempt to abscond from an unlocked ward.

It is peculiarly easy in psychiatric practice to conclude that certain procedures produce various changes which happen to have emerged in association with their application. Wittgenstein(8) offers a healthy corrective; "Es können alle Kombinationen der Sachverhalte bestehen, die ändern nicht bestehen."

Most of the preparatory requirements for ward opening quoted above rest upon 2 assumptions. First, that well-integrated escapees will provide the principal problem in the opened wards, and second, that the regressed, confused schizophrenic will be amenable to such influences.

In view of this, experience recently gained at Shenley Hospital, near St. Albans, would seem to be relevant. Female Division B comprises 752 beds. Of these, 360 were in locked wards until last year, contained in a block of 6 wards and an insulin shock therapy ward.

Between May and September 1956, 4 of the wards on the block were opened. Neither intensive group therapy nor a programme of occupational therapy on the ward preceded this step. (A small group of 7 psychotics had been having group therapy sessions for several weeks before their wards were opened and weekly sessions involving

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all the patients on the semi-refractory ward have since been instituted.) No changes were made in the method of running the wards prior to their being opened.

As each pair of wards share an airing court, it was necessary to undertake the opening of 2 wards at a time.

The 2 wards first opened were respectively an infirm ward of 50 beds and a ward of 57 beds containing for the most part well-integrated patients, 14 of whom worked in the hospital utility departments. These wards and their airing court were opened on May 19, 1956, and raised relatively few problems subsequently.

Before opening the second pair of wards—a semi-refractory ward of 52 patients and a ward of 55 patients, for the most part degraded and including 25 epileptics—14 patients had to be transferred to the remaining locked wards. Of these no less than 12 were deteriorated schizophrenics of under 60 years of age. There was one case of senile dementia and one blind mental defective. The semi-refractory ward was opened (via the adjoining open ward) on September 26, 1956, and the other ward (similarly) on the following day. On the 29th the airing court was thrown open.

During the first 4 weeks of unlocked doors, 11 patients had to be brought back to the semi-refractory ward, and 5 to the epileptic ward. (The corresponding figures for the 4 weeks preceding opening were 2 and 3 escapes respectively.)

Of these, no less than 10 were deteriorated schizophrenics under 60 years of age, two were deteriorated schizophrenics over 60 (one was found dead). The remaining 4 were non-deteriorated schizophrenics. Four of these patients were subsequently transferred to the locked wards. All of these latter were deteriorated schizophrenics under 60.

DISCUSSION

Several conclusions have been drawn from this operation which might be of value for those contemplating opening wards.

The first, perhaps surprising, fact emerging is that the well-integrated patient presents little problem; the paranoid or manic patient often responds well to ward opening.

Those patients who have been formerly noted as escapees often abscond no more frequently than they did before the opening. Also, the paranoid cases may be much improved in this and other respects by means of chlorpromazine.

Senile demented provide a problem, but a small one. The principal difficulty occurs with the deteriorated, confused schizophrenic. These patients are often not merely troublesome, but are of some danger to themselves when they wander off an open ward. They do not respond well to group psychotherapy, although they may do so to regular occupational therapy and simple manual tasks under constant supervision (4, 6, 7). Certainly, such a programme provides supervision and tends to diminish the time during which they are wandering aimlessly around the ward garden, and perhaps out of it. There is some evidence that routine occupation does reduce the tendency of this type of patient to abscond (6).

In retrospect it would seem that a programme of occupational therapy for these patients might well have preceded ward opening by some months.

The need for controlled studies of such changes as ward opening is very great. A belief that patients and staff have improved socially may be merely due to projection on the part of the psychiatrist. It is difficult to obtain such controlled studies, as ward opening is inevitably accompanied by the transferring of degraded patients or by other measures such as an occupational programme. These will have an unassessed effect.

Of course, this consideration applies with equal force to the supporters of locked wards. Incarceration is unpleasant—it is society's chief deterrent—and most patients do not emulate the subjects of Honorius in "contemplating their new freedom with surprise and terror" (3). (One disgruntled patient did however remark, the day after her ward had been opened; "They've opened the doors; anyone can get in.") The onus would certainly appear to be on the supporters of locked wards to prove their case.

One thing that does appear possible is that the familiar, deteriorated, confused schizophrenic of the mental hospitals would

never have reached that stage had he spent his hospital life on an open ward. The removal of all contact with the outer world might reasonably be postulated as the principal precipitant of his condition. If this should be the case, the problem presented by these patients would be a temporary one. A reliable wire-mesh fence surrounding the hospital precinct—sufficient merely to deflect aimless wanderers—and a porter at the gate would seem desirable, at all events in the early days of open wards. These conditions prevail at Warlingham Park Hospital, but not at Dingleton Hospital. In both all the wards are unlocked. At Netherne Hospital, where 5 closed wards have been retained, the hospital grounds are open to the surrounding countryside.

SUMMARY

Consideration is given to the problems raised by the unlocking of the chronic wards in mental hospitals. The deteriorated schizophrenic, who has spent many years in the hospital, provides most of the difficulties. Attempts to employ this type of patient in small groups of 10 to 18 have produced good results (7, 6) and afford adequate supervision. The need for, and difficulties of, ob-

jective assessment of the effects of ward opening² are emphasised.

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A STUDY OF THE EFFECTS OF L.S.D.: PHYSIOLOGIC AND PSYCHOLOGICAL CHANGES AND THEIR INTERRELATIONS

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In a previous experiment at the Boston Psychopathic Hospital it was shown that changes occurred in various parameters of the autonomic nervous system subsequent to the administration of Lysergic Acid Diethylamide in a dose of one gamma per kilo of body weight(1). Utilizing a polygraph as a means of recording the physiological variables, differences in the patterns of physiological reactions of the autonomic nervous system were observed between days in which L.S.D. or a placebo were administered.

The purpose of this study is to utilize this polygraphic procedure of data recording to investigate:

1. The changes in the autonomic nervous system which occur over the course of the day subsequent to the administration of L.S.D.
2. The relationship between the course of these physiological changes and the course of the behavioral and emotional changes.

EXPERIMENTAL METHOD

Apparatus: An eight channel Offner electroencephalograph converted to a polygraph, a recording instrument which allows for continuous and simultaneous recordings, was used. The apparatus was in a room adjoining the sound-proof, temperature-controlled room in which the subjects were placed during recording sessions. A one-way-vision mirror and an audio system allowed for complete observation during recordings. By means of wire leads attached to the subjects the following physiologic parameters were recorded: the EKG as a measure of heart rate, respiration, finger skin temperature, and the muscle tension recordings from the frontalis muscles. In addition systolic and diastolic blood pressure and pupil diameter were recorded.

Subjects: The subjects were 6 male col-

lege students, 24-28 years old and weighing 150-180 pounds, paid volunteers.

Procedure: For each subject there were 2 observation days; one of these days the subject received one gamma of L.S.D. per kilogram of body weight and on the other a placebo was given. The schedule for each day consisted of a series of 5 fifteen-minute recording sessions. The first recording session took place immediately preceding the administration of the drug, with subsequent sessions starting 1½, 2½, 4½, and 7½ hours after the L.S.D. was taken.

During each recording period the subject was comfortably seated, by himself, in the observation room and was connected by wire leads to the polygraph. The subjects were requested to refrain from any excessive movements throughout the sessions. At the end of each session pupil diameter (under standard lighting conditions) and blood pressure were determined.

In the interim between recording sessions the subjects were studied by another group of investigators who observed the social and psychological effects of L.S.D. Their observations on the types and/or intensity of behavioral changes manifested by the subjects, along with the subjective expression of various symptoms and their intensity, were recorded over the course of the day. Control and experimental days were kept as similar as possible.

ANALYSIS OF DATA

A. Physiological Data.—For each subject the following measures, derived from the physiological recordings, were obtained for each session of both control and experimental days:

1. Heart rate mean; 2. heart rate lability; 3. respiration rate; 4. respiration rate variance; 5. inspiration/respiration ratio; 6. I/R ratio variance; 7. finger skin temperature level; 8.

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muscle tension level; 9. systolic blood pressure; 10. diastolic blood pressure; 11. pulse pressure; 12. pupil diameter.

To adjust for day-to-day variations in the level of these physiological variables, to aid in eliminating individual variations, and to correct for the variations which normally occur in these variables during the course of the day, the following methods were employed:

1. All physiological data were dealt with in terms of the amount of deviation (expressed as a percent) from the first recording session of the day. This procedure aids in correcting for day-to-day variations in the level of physiological measures and individual variations in initial level.

2. The deviation of each variable in each recording session from the first recording in the control days gives an estimate of day to day variations that normally occur. These variations which may contaminate the effects of L.S.D. are graphically presented side-by-side with the deviations noted in each variable on the L.S.D. days, so that the amount of deviation for the corresponding periods and variables could be compared.

The combination of these two procedures allows us to note, over the course of the day, changes in the physiological variables due primarily to the L.S.D. effects.

B. Psychological Data.—The rate of onset, peaks, fluctuations and intensity of symptoms of subjects administered small doses of L.S.D. were evaluated by clinical psychiatric examinations and by observers who studied the subject throughout the experimental day. The symptoms, based on the subjects' verbalized reports and overt actions, were grouped as somatic, mental, perceptual or social. However, since an increase in symptom intensity could occur that might not be verbalized or observed, a method previously devised⁽²⁾ for recording the subject's viewpoint, his own evaluation of his L.S.D. reaction was used. The technique adopted consisted essentially of a simple histograph charted by the subject at the end of each experimental day. The extent of the

deviation from normal was indicated by each subject along a vertical axis consisting of 4 reference points: normal, mild, moderate, and severe.

Instructions for filling out the symptom graph were general. The subject was asked to give his own evaluation of the symptom intensity he experienced for the full day beginning with the moment the drug was taken. The basis for the comparison of changes was 1. the previous hour and situation and/or 2. his subjectively felt "normal" state. The quality or characteristics of the changes with reference to specific symptoms is a uniquely subjective matter. For that reason the standards or criteria for symptoms was structured in the form of an open-ended question. A space was provided for comments by which the characteristics of the peaks, changes and duration of the drug effects could be specified and elaborated by each subject.

RESULTS

A. Physiological.—For each physiological variable analyzed, 2 charts are given. The first chart shows the average² variations that occurred over the course of the control day and the second chart shows the average variations that occurred over the course of the L.S.D. day.

1. Heart rate.

- a. *Control day.*—The mean heart rate tended to remain quite stable throughout the day with the rather small changes that did occur (+05% maximum) showing a steady slow rise.

- b. *L.S.D. day.*—During the second recording session (the first one after the drug had been administered), there was a decided increase in the heart rate which averaged about 11% higher than the control period rate. This increase continued until the fourth recording session when the peak increase of 18% was noted. The last recording session

² It is important to note that these are *average* values. Individuals differed somewhat in the degree of reactivity of the various autonomic systems. The relationships between these variations and personality structures will be the topic of a subsequent paper.

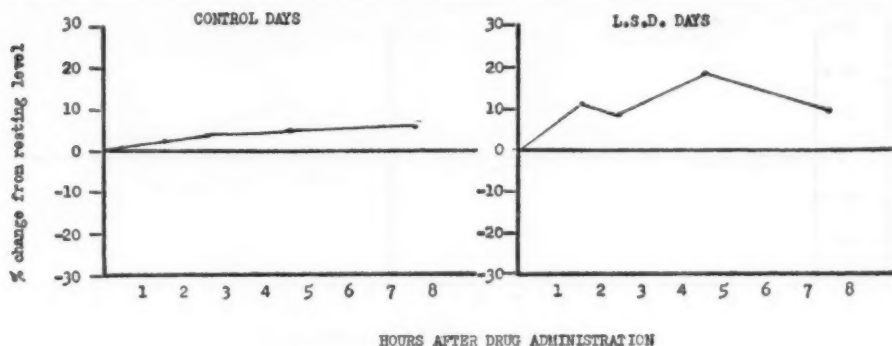


FIG. 1.—Heart Rate.

saw the beginning of a return towards the original heart rate level since the increase dropped from 18 to 10%.

2. Heart lability.

a. *Control day*.—The lability of the heart was not greatly altered through the day. The maximum variation from the first recording session occurred in the fifth session when a 9% increase in lability occurred. The small variations during the other sessions presented no consistent pattern.

b. *L.S.D. day*.—there was a gradual drop in the heart lability (*i.e.* it became more stable) until the fourth session when a sudden decrease of 28% was noted. During the last session the heart lability began to return to normal, as evidenced by the fact that the lability decrease was now only 14%.

3. Systolic Blood Pressure

a. *Control day*.—Very little change in systolic blood pressure was shown throughout the day, the changes never exceeding $\pm 2.8\%$.

b. *L.S.D. day*.—The systolic blood pressure rose until the third period (2½ hrs. post drug administered) when an increase of 12% was noted. A return towards the baseline tended to occur in the subsequent recording sessions.

4. Diastolic Blood Pressure

a. *Control day*.—The largest change (an increase) in the diastolic blood pressure noted during the day was only about 1.5%.

b. *L.S.D. day*.—The diastolic blood pressure rose until the third period (an increase of 10%). It then returned to the baseline by the next session and in

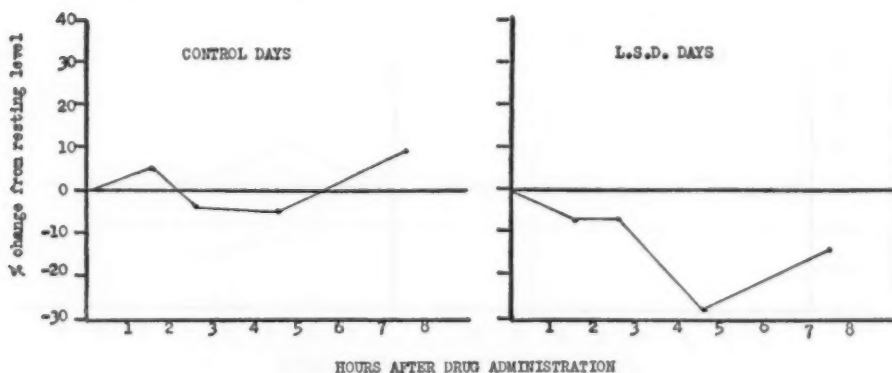


FIG. 2.—Heart Rate Lability (D-score values).

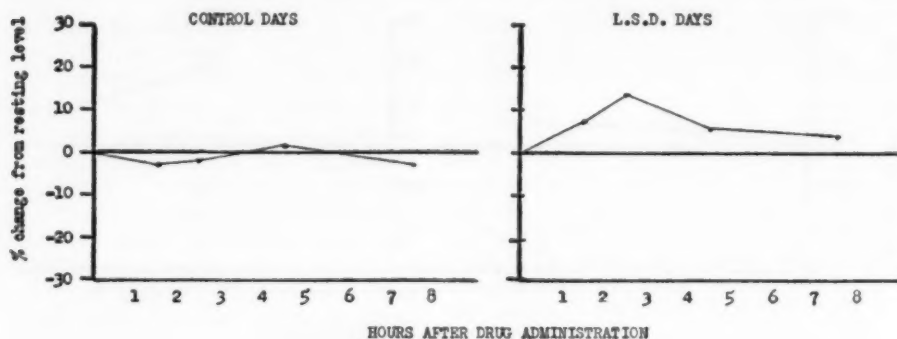


FIG. 3.—Systolic Blood Pressure.

the last a decrease (-2%) in the blood pressure was exhibited.

5. Pulse Pressure

a. *Control day*.—The pulse pressure dropped (-7%) in the first session and then tended to return towards the baseline mean during the next 2 sessions. The last session was featured by a drop in pulse pressure of 9% . In general the pulse pressure was below the control period mean throughout the control day.

b. *L.S.D. day*.—The pulse pressure on the L.S.D. days showed an increase until the fourth session ($+9\%$, $+16\%$, $+19\%$) and then a slight lowering in the last session towards the baseline ($+18\%$).

6. Muscle Tension

a. *Control day*.—A continued and progressive relaxation of the activity

recorded from the frontalis muscles was exhibited on control days (-16% , -18% , -24% , -26%).

b. *L.S.D. day*.—The muscle tension increased on L.S.D. days reaching the peak of tension in the third session ($+33\%$) and then showing relaxation in the latter sessions (returning almost to the mean baseline value ($+6\%$) in the last session).

7. Pupil Diameter

a. *Control day*.—The size of pupils changed very little during the control days and the variations noted were of a constriction nature.

b. *L.S.D. day*.—Pupil diameters, on L.S.D. days, were featured by a rapid and large ($+53\%$) dilation. By the fourth session they began to return to their original size although they were

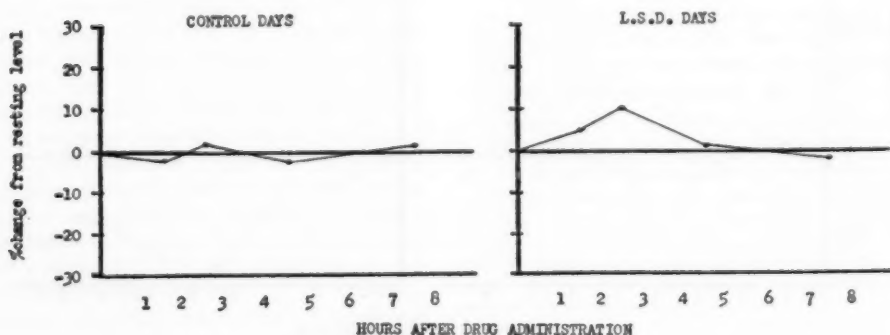


FIG. 4.—Diastolic Blood Pressure.

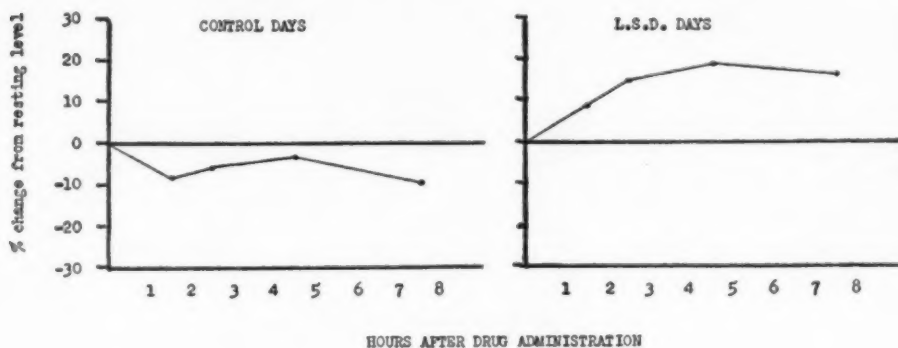


FIG. 5.—Pulse Pressure.

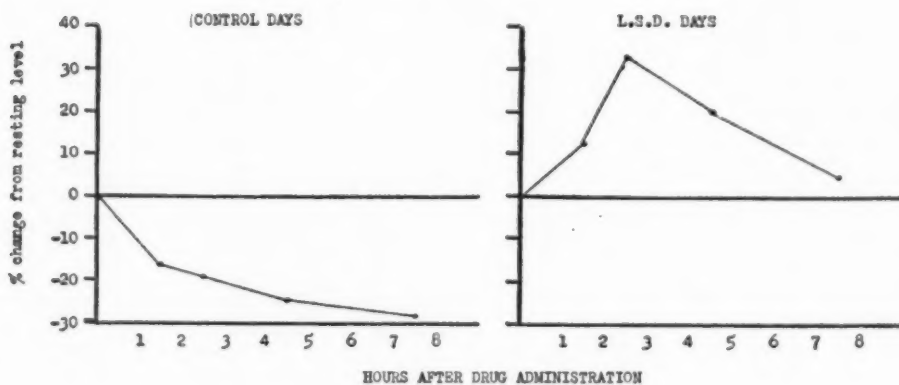


FIG. 6.—Muscle Tension.

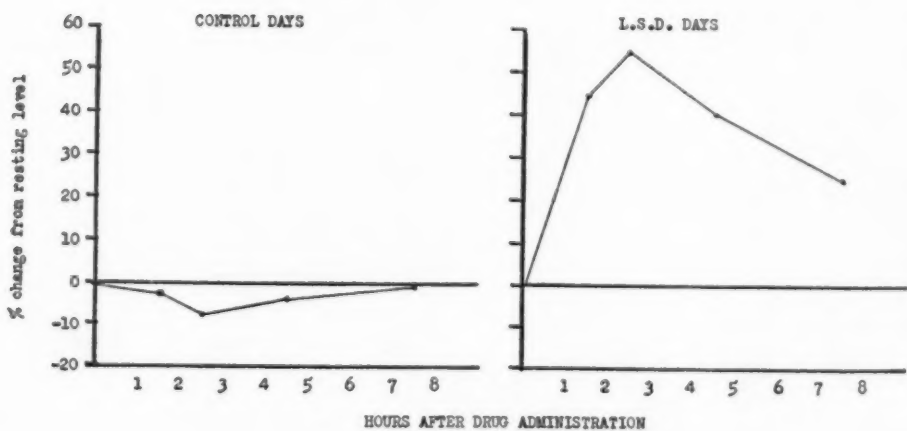


FIG. 7.—Pupil Size.

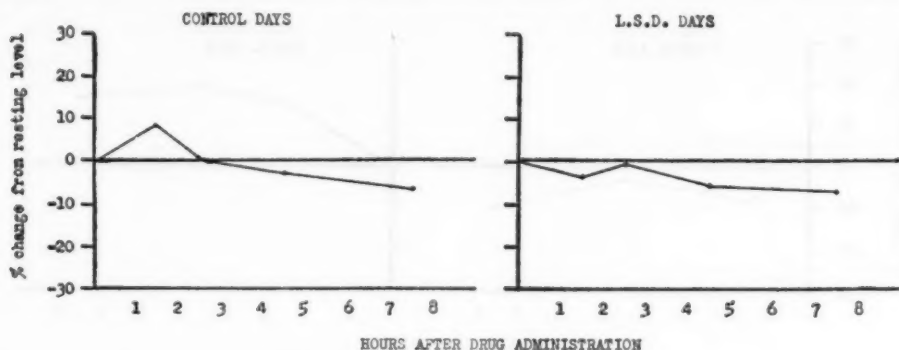


FIG. 8.—Skin Temperature.

still dilated (+24%) at the end of the experiment.

8. Skin Temperature

a. *Control day*.—The pattern of the skin temperature variations, small as they were, (+09% to -07%) showed a rise in the second session and then a continual, though moderate, lowering in the following sessions.

b. *L.S.D. days*.—The skin temperature in L.S.D. days showed a trend towards decreasing, reaching the lowest level (-09%) in the last period.

9. Respiration rate

a. *Control day*.—There was a slowing down of the respiration rate (10%) from the first to the second session, then a speeding (4-5%) of the rate until the last session when a sharp slowing (13%) was observed.

b. *L.S.D. day*.—The respiration rate

pattern became more consistent, with the rate speeding up (8%) in the first post-drug session and then slowing continually until, during the last session, it was slower (3%) than the pre-drug rate for L.S.D. days.

10. Variance of Rate of Respiration

a. *Control day*.—There was little change in the variance of the respiration rate until the last session when a large increase (+97%) in the variability occurs.

b. *L.S.D. days*.—In the first post-drug session the variability was doubled (+197%), followed, in the succeeding sessions by a progressive return towards the control session variability level (+168%, +125%, +35%).

11. Inspiration/Respiration Ratio

a. *Control day*.—The I/R ratio showed a slight decrease in the second

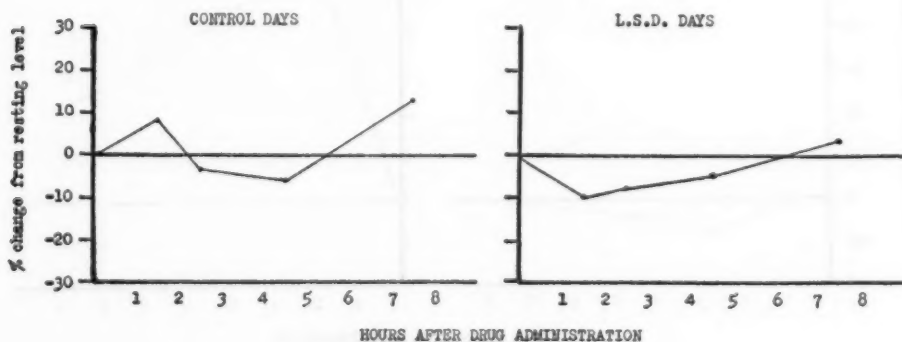


FIG. 9.—Respiration Length.

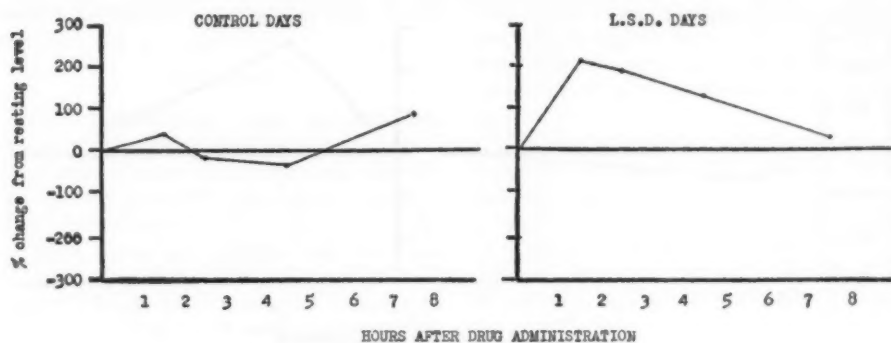


FIG. 10.—Variance of Respiration Length.

and third sessions (-3 to 5%) and then returned to the baseline for the remainder of the experimental sessions.

b. *L.S.D. days.*—The I/R ratio showed a gradual and continued increase from the first session throughout the day, reaching a maximum in last session ($+16\%$).

12. Variance of I/R ratio

a. *Control day.*—The variability of the I/R ratio was decreased during the second and third sessions of the control day (-48%) and then increased towards the initial level in the following sessions (-21% , -7%).

b. *L.S.D. days.*—The variability of the I/R ratio was doubled in the first post-drug session and almost trebled in the second. After reaching this peak of variability, the I/R ratio variance re-

turned towards the baseline in the next 2 sessions.

B. *Psychological.*—For a comprehensive description of clinical symptomology, over the course of the day subsequent to L.S.D. administration we refer the readers to S. Salvatore's article, "Progression of Effects of L.S.D." (3). For purposes of the present study it should be noted that the subjects reacted in an individual manner in terms of type, quality, and intensity of symptom formation. Overall, however, they showed a similar pattern of reaction such that: 1. symptoms (usually of a somatic nature) began to appear within the first hour after L.S.D. and were felt as mild or moderate in intensity; 2. during the next hour an increase in the number of clinical symptoms occurred, with an intensification of feeling of deviation from normality and some change in symptom

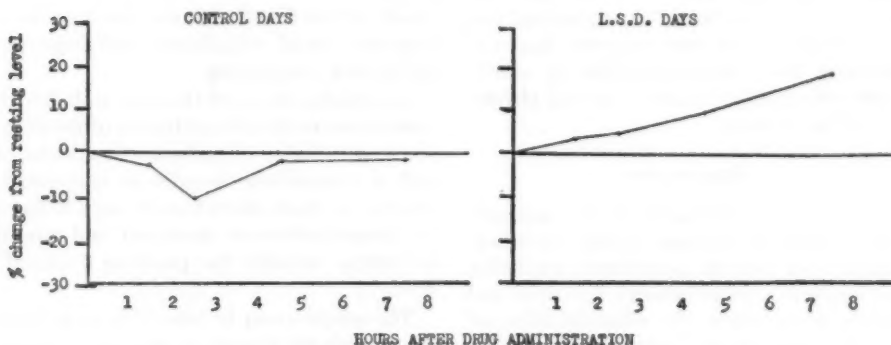


FIG. 11.—Inspiration/Respiration Ratio.

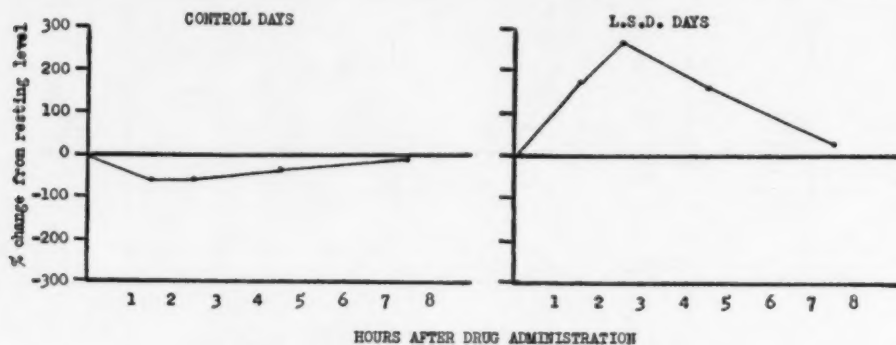


FIG. 12.—Inspiration/Respiration Ratio Variance.

quality—from somatic to predominantly ideational and perceptual distortions; 3. the peak deviation from normality was felt from the second to the fourth hour, with feelings of unreality and confusion being most prevalent; 4. these symptoms subsequently began to lose their strength, gradually diminishing in frequency and intensity until the end of the experimental day (8-9 hours after L.S.D. was administered).

CORRELATION OF CLINICAL AND PHYSIOLOGICAL EVENTS

The incidence and intensity of behavioral deviation as evidenced by the observer's reports and by the subjectively perceived symptoms coincided through the day, in general, with the incidence and intensity of physiological deviation. Both indices began to show changes within the first half hour, reached a peak of deviation between the third and fourth hours, and returned to the pre-drug level by the eighth hour. It is significant that these changes occur concomitantly, thus emphasizing the Cannon principle of simultaneity of emotional expressions and physiological functioning.

DISCUSSION

The reactions exhibited in our measures of the autonomic nervous system can be explained by a general sympathetic excitation that reached a peak between the third and fourth hours after the administration of L.S.D.: subsequently there was a gradual decline in sympathetic excitation by the

eighth hour, returned to the pre-drug level of activity. Three exceptions to this were noted in that the pulse pressure, the skin temperature and the I/R ratio reached their peak of deviation during the last recording session (the eighth hour after L.S.D.) and showed little tendency to return to the initial level.

The latter phenomena may probably be ascribed to the fact that autonomic nervous system measures are more sensitive as well as more objective than psychological indices. Thus after psychological effects and most of the physiologic reactions of the drug have subsided, residual changes not detectable by other means, may be demonstrated.

In psychotic subjects in whom sympathetic tone and high physiologic reactivity predominated (associated with increased anxiety states) it has been demonstrated that following lobotomy there is a decrease in sympathetic tone (drop in heart rate, more reactive heart, decrease in I/R variability, etc.)—which is associated with decreased anxiety, improved social adjustment, and improved intellectual functioning.

Essentially, this is what occurs with L.S.D. Subsequent to the administration of the drug, severe personality disturbances are produced with a concomitant increase in sympathetic tension: as these disturbances were reduced the sympathetic-tone decreased and tended to return towards the pre-drug "normal" level.

The question may be asked, "Is an increase in sympathetic tension a necessary physiological concomitant of psychosis?" Our

studies would indicate that this may be the case.

SUMMARY

The physiological and psychological changes throughout the day subsequent to the administration of Lysergic Acid Diethylamide were recorded and analyses made of their interrelations. The Harvard Polygraph was used to simultaneously and continuously record heart rate, respiration, skin temperature, blood pressure, and muscle tension. Recordings were made under resting conditions immediately before and 1½, 2½, 4½, and 7½ hours subsequent to L.S.D. administration.

Physiologically, a general sympathetic excitation resulted, which reached a peak of tension in 3 to 4 hours and then gradually returned to the pre-L.S.D. level by the eighth hour. Heart rate increased and became more stable, systolic and diastolic blood pressures were elevated, pulse pressure rose, muscle tension mounted, skin temperature tended to drop, breathing became faster and more

variable, the inspiration/respiration ratio decreased and became more variable, and pupillary dilation occurred. No such drastic changes were noted in the control (placebo) days.

Changes occurred psychologically that paralleled the physiological changes. Deviation from "normality" both behaviorally and subjectively was most pronounced, in number of symptoms expressed and intensity of expression, about 3 to 4 hours after L.S.D. administration and gradually diminished until the eighth hour.

Some of the implications of this study are mentioned and the similarity between the sequences of events post-L.S.D. with the changes pre-post lobotomy are discussed.

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THERAPEUTIC AND TOXIC EFFECTS OF CHLORPROMAZINE AMONG 3,014 HOSPITALIZED CASES

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Therapeutic response, side-effects and toxicity among 3,014 patients on chlorpromazine were studied during an 18 month period in a mental hospital with an average census of 9,200. The findings bear on the relation of moderate dosage to a low incidence of jaundice and clinical side-effects. Serial laboratory examinations may have been instrumental, through clinical awareness, in minimizing the severity of hepatic and/or leukocytic derangements. The large numbers of cases and laboratory tests lend themselves to an adequate statistical evaluation.

A few months after Winkelman's publication(1) in May 1954, on the first use of chlorpromazine in this country, we conducted a pilot study on 90 patients to determine optimum dosages and types of complications of this tranquilizing agent. With negligible ill effects established in this group, a hospital-wide study project was initiated January 1, 1955, and terminated June 30, 1956. The 23 physicians among 13 buildings of the hospital complex used dosages that were generally conservative throughout the 18 month period. During the first 6 months there was some restriction in the admission to treatment of categories of mental disease. Thereafter, the medical staff exercised free choice among all classified psychotics.

In addition to the clinical side-effects, the familiar complications of jaundice, leukopenia and agranulocytosis were well publicized and even over-emphasized to the staff. Winkelman had reported 5 cases of jaundice in 1,942 patients; in one state hospital, jaundice had occurred in 18 of 1,300 patients(2). The biochemical changes and histopathology of the liver in jaundice from chlorpromazine had been adequately described(3). It was known that 2 fatalities from liver toxicity had allegedly followed this new therapy(4).

This sobering intelligence ensured continued alertness of the staff to possible

hazards of chlorpromazine treatment even though some authors(5) felt strongly that the seriousness of side-effects and toxic complications were overrated. Throughout the program our physicians maintained cautious administration of the drug. Since a more objective evaluation of toxic complications was possible by laboratory studies, well over two-thirds of all cases had periodic liver function tests and hemograms performed.

MATERIAL AND METHODS

Case Selection and Laboratory Checks.—An extended range and number of acute and chronic mental diseases composed the institutional population. Among most of the chronic cases placed on chlorpromazine, there had been poor or short-lived response to single or combined courses of electroshock, insulin coma, sedation and lobotomy. Between January 1955 and June 1956, 3,014 patients were admitted to chlorpromazine therapy.² All age groups and both sexes were sampled—from boys and girls, aged 6 to 16—to senile patients as old as 81. The management of treatment crystallized into 3 distinct phases of 6 months each (Table 1).

Phase 1 was concerned with indoctrinating the staff in the pharmacology of chlor-

TABLE 1
CASES ADMITTED TO TREATMENT

Phase	Males	Females	Total	Jaundice cases	
				No.	%
1. Jan.-June, 1955 ..	323	413	736	3	.41
2. July-Dec., 1955 ..	478	585	1,063	3	.30
3. Jan.-June, 1956 ..	583	632	1,215	7	.58
(Determinate group)					
	1,384	1,630	3,014	13	.43

² Not included were 22 patients on combined chlorpromazine and reserpine therapy, none of whom showed complications.

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promazine and searching for the most common toxic complications. Laboratory tests were done on nearly 200 patients in this group, chiefly when any clinical side-effects were noted. A battery of liver function tests and complete blood counts at weekly intervals were carried out on the 3 jaundiced patients and on all others on whom abnormal values of serum bilirubin or white blood cell counts were found.

Phase 2: There were 1,063 new cases in this second half-year period on whom therapeutic response, side-effects and toxic complications were documented. One-quarter of the 1,063 cases had pretreatment blood counts and serum bilirubin determinations. All cases, sometime during the first months of treatment, had these tests done on one or more occasions. Serum alkaline phosphatase determinations (Bodansky), cephalin flocculation and thymol turbidity tests were performed if an elevated bilirubin was discovered.

Phase 3: In this Determinate Group, each of the 1,215 new patients was subjected to a systematized procedure of clinical and pathological observation. Dosage, side-effects, therapeutic response and disposition of the patient were recorded. All patients were on the following laboratory regimen: (a) In the week before treatment, a complete blood count, total serum bilirubin and serum alkaline phosphatase. (b) These 3 tests were repeated between the 14th to 21st day of treatment and thereafter at 3 to 4 week intervals. Patients with abnormal values had these tests repeated weekly or oftener.

Dosage and Duration of Treatment.—The dosage, on the first day, was 25-50 mgm. of chlorpromazine intramuscularly; then 75 mgm. IM. plus 100-200 mgm. orally from the 2nd to 7th day for two-thirds of the 3,014 cases; the other third received 300-400 mgm. orally, from the beginning. As the physicians gained experience and lessened their apprehension of immediately unfavorable reactions, the intramuscular route was largely abandoned in the last 6 months, especially for senile patients who commonly required bed rest after this route. We found no clear-cut clinical picture of skin hypersensitivity following the first dose. The real merit of these putative doses was

in the detection of transient hypotension necessitating temporary bed rest, chiefly during the first week of medication.

About 90% of all patients received average dosages between 300-400 mgm. daily from the 2nd week to the 2nd or 3rd month; most of the remainder got smaller amounts. As soon as the mental condition showed improvement, the dosage was gradually reduced to a maintenance level of 200 mgm. daily. This was continued until eligibility for discharge. During the first 6 months (Phase 1), 26 cases were treated with 500 to 1,000 mgm. daily but showed no appreciable therapeutic advantage. We saw no need for the large doses given by Kinross-Wright (5b). In his 251 cases, the daily dose averaged 1,400 mgms. with a maximum of 3,400 mgms.

Our courses ranged from 3 to 18 months except that 77 patients have, at this writing, received chlorpromazine several months beyond the 18 month period without complications.

Program Deficiencies.—Therapeutic response, side-effects and toxic complications among the 3,014 cases were admittedly studied in breadth without great depth. Serial laboratory checks were done at 2 to 4 weeks intervals which may not be frequent enough. The large number of cases and data so recorded may offset some statistical deficiencies that might have been avoided in more frequent observations. Pooling of the experiences of 23 physicians had the merit of integrating a wide range of attitudes to the effectiveness of chlorpromazine therapy.

Minor hepatic or leukopenic complications may have been overlooked in the early months of the project. Serious sequelae were not likely to be missed during daily ward rounds since continued medication would expectedly aggravate the ill effects. During Phase 1, serum bilirubin elevations between 1 and 2 mgms. occasioned temporary suspensions of medication that were not always recorded. As experience with these slight bilirubin elevations showed only a small likelihood of a further rise on continued medication, the interruptions were eliminated.

Even with occasional deviations from the prescribed schedule, over 21,000 laboratory

determinations were performed during 1955, (Phases 1 and 2), on 1,799 new cases—an average of over 11 tests per case. The particular tests were selected chiefly for interpretative consistency, technical simplicity, a minimum of venepunctures and suitability with small blood samples.

CLINICAL ASPECTS

Therapeutic Action.—Response to treatment during the 18 month period was adequately charted, in spite of intramural transfers, on 8 of the 13 psychiatric services in the program. The results among 1,534 cases treated from 3 to over 18 months are summarized in Table 2.

There are no universally accepted parameters for recording shades of improvement in mental disease. For this reason, only two states of therapeutic response are listed in Table 2. The first, "Fair," includes any noticeable change, for the better, in any of the mental symptoms in the field of behavior. The second, "Good," includes the first stage of behavioral improvement plus a decrease or removal of delusional or hallucinatory features characteristic of the mental diagnosis. Among the 8 services of Table 2,

therapeutic appraisal by the optimists and skeptics balanced out to merge with the judgments of those with more neutral approach.

The influence of chronicity of disease on the effectiveness of chlorpromazine was not generally calculated although one of us, (E.A.), in 247 highly disturbed chronic cases, found the average duration of illness was 10 years and 2 months. It was seen early that the drug follows the therapeutic *cliché* that the degree of improvement is inversely proportional to the duration of the disease.

The percentage of any degree of improvement by chlorpromazine is outlined in Table 2. This is slightly higher than in other reports, particularly that of Goldman on 506 cases(6)—first, because we recorded the mildest symptomatic changes and secondly, we usually treated for longer periods. One minor exception to prior reports is that we did not note frequent early disappearance of hallucinations. These largely persisted for some months although they were less apparent in the general suppression of untoward psychomotor activity. There were no actual "cures" in the absence of suitably

TABLE 2

THERAPEUTIC RESPONSE, 1,534 CASES

(Services of Drs. Asrican, Bereslavsky, Catalano, Fassman, Fenichel, Jarosz, Mateciunas, vonTauber)

Mental diagnoses	No. cases	Good ^a	Fair ^b	No change	Percent improved	Released (among 597 only)
Manic-depressive	61	38	16	7	88	18
Psychosis due to alcoholism	44	16	24	4	89	4
Dementia praecox:						
Catatonic	270	105	116	49	82	9
Hebephrenic	336	125	141	70	79	5
Juvenile	43	10	22	11	74	—
Paranoid	464	203	186	75	84	34
Simple	21	11	6	4	80	2
Miscellaneous ^c	141	20	85	36	75	1
Psychosis c mental deficiency	49	6	25	18	62	—
Agitated states ^d convulsive disorder ...	29	3	19	7	75	—
Involutional psychosis ^e	76	10	19	47 ^f	38	—
Totals	1,534	547	659	328	74	73 (of 597)

^a Good indicates both behavioral and ideational improvement with 10-20% suitability for discharge on convalescent care.

^b Fair indicates any degree of sustained improvement in behavior with little or no change in psychosis—not eligible for discharge.

^c Includes chronic brain syndromes such as cerebral arteriosclerosis, Huntington's Chorea, postencephalitic syndromes, traumatic psychoses, general paresis and a few psychoneuroses or psychopathic personalities.

^d Convulsive symptoms not markedly affected—anticonvulsant agent continued with chlorpromazine.

^e Includes melancholia and paranoid states.

^f One-third of these became worse in contrast to other psychoses with no adverse effect by the drug.

long follow-up periods. On 3 chronic services, 73 of 597 cases, (12%), were discharged on convalescent status. On the other 5 services, discharge rates ranged from 5% to 15% depending on the diagnostic composition of case material.

The prominent effect of chlorpromazine, particularly on patients hitherto not amenable to other forms of mental therapy, was on behavioral symptoms. Response was usually apparent within the first month, but often required over 3 months of medication. Amelioration of the underlying psychosis was gradual and less constant, requiring at least 2 and commonly up to 6 months of continuous treatment to modify or eliminate delusional or persecutory ideas.

Chlorpromazine was found to be of minimal or uncertain effect in purely depressive states—involutional melancholia, catatonic stupor, severe social withdrawal, and the like. In a large minority of such psychoses there was an aggravation of symptoms, as also noted by Hoch and coworkers(7) in their 2-year study of 300 mental cases. The most satisfying responses were in agitated phases of dementia praecox, manic-depressive (manic), and alcoholic psychoses. In excited patients with mental deficiency or convulsive disorders, chlorpromazine was primarily a tranquilizer, only partly altering the fundamental disorder. This also applied to most of the organic psychoses listed under Miscellaneous in Table 2. On one continued-treatment service, 14 female epileptics on anticonvulsant medication had suffered a total of 64 seizures in the 6 months before chlorpromazine. During the first 6 months on the drug, there were only 36 seizures in the group. This reduction may be related to diminished susceptibility to environmental stimuli.

The consensus was that at least 3 months of sustained treatment was needed to judge the efficacy of chlorpromazine. The technique tried elsewhere of repeated 1 to 2 month courses of dosage was abandoned early because of common relapses within a few weeks after discontinuing the drug. Winkelman has rightly stated(8) that chlorpromazine medication is as sensitive and skilled a procedure as the use of insulin for the diabetic or digitalis for the cardiac.

Clinical Side-Effects.—Table 3 summarizes the pronounced side-effects among the 1,534 patients. Undesirable effects have been publicized but their frequency and weight vary with the observer and diagnostic categories. Among our hospitalized patients, subjective complaints during treatment were far less prominent than in office practice dealing with a large component of psychoneuroses and anxiety states. The latest study of side-effects has been by Cohen(9) on 1,400 inpatients. He divided complications into major and minor groups with the former, as we found, far less frequent. We do not consider, as he did, the commonly occurring somnolence to be a complication, but rather a part of the tranquilizing action. Table 3 excludes those undesirable effects which were ephemeral, or which caused no real distress. If one eliminates single episodes, lasting a few minutes or hours during months of treatment, the forms and frequency of side-effects are not impressive. We encountered no permanent sequelae in any case, even in well over 18 months of medication among 77 patients. Complications were of greater moment for the apprehensive physician than for the patients themselves.

Excluding jaundice and severe neutropenia, the side-effects in therapy of chlorpromazine should be regarded in the same tolerant light as those accompanying antihistaminic or atropine therapy. Aside from jaundice, these disturbances disappeared in a few days to a week, even if medication was not stopped. It is possible that our low incidence is related to the consistently mod-

TABLE 3

SIDE-EFFECTS IN 1,534 PATIENTS OF TABLE 2

	No.	%
Jaundice	9	.6
Hypotension	52	3.4
Tremors and/or parkinsonism	25	1.7
Fever	12	.8
Tachycardia	27	2.5
Skin rashes	62	4.0
Dizziness	34	2.2
Diarrhea	9	.6
Facial edema or pallor	2	.1
Convulsions	17	1.1
Lactation	6	.4
Other (dry mouth, nasal congestion, swelling of breasts, nausea)	16	1.0

erate doses employed, since such side-effects as apathy, blurring of vision, Parkinsonism or swelling of the female breasts have been associated with high dosages(9).

Only 6 of the 25 patients with tremors showed true Parkinsonism with typical facies, pill-rolling and changes in gait or speech. The multiform rashes occurring in the first 2 weeks do not include the occasional photosensitive reactions. Photosensitivity became increasingly rare as prophylactic measures were emphasized. Jaundice was present in 9 of 1,534 clinically documented cases as compared with 13 among the entire series of 3,014 patients. Fever, usually associated with tachycardia, occurred chiefly in the first few days of treatment and was usually below 101° by rectum. Convulsions occurring once or several times were noted in 17 patients although most reports do not include this side-effect.

A few physicians, more concerned with mental improvement, maintained treatment in the presence of many of the listed side-effects. It was a common experience that, excluding rash, jaundice, or a pronounced leukopenia, the other ill effects would almost always disappear in a few weeks while on medication either in the usual or reduced amounts.

LABORATORY ASPECTS

Blood counts were made in over half of all the cases in the week before beginning treatment. A like number of bilirubin controls was used to exclude preexisting liver diseases. The rationale of selection in the Determinate Phase 3 of only two liver function tests, the total serum bilirubin and the rapid serum alkaline phosphatase technique recently devised by Goldenberg(10), is presented elsewhere by Cares and Newman(11). The Goldenberg method for alkaline phosphatase requires only 0.1 ml. of serum; it is not affected by hemolysis and its few steps are completed in a half-hour. Its accuracy equals or exceeds currently used procedures.

Other hepatic function tests—cephalin flocculation, thymol turbidity, cholesterol-esters, etc., which were frequently performed in Phases 1 and 2, were found too equivocal

as has been previously noted(12). The bromsulphthalein test could not be used where toxic jaundice was a potential danger.

Doses and Liver Function in Jaundice.—There were 13 cases of toxic jaundice among the 3,014 patients on chlorpromazine therapy. The incidence of jaundice is lower than in the range from 1-3% usually encountered. Our figure of 0.43% is comparable to 0.62% of Cohen and Archer in 800 cases(13) and 0.2% of Goldman with 506 treated(6). Increased clinical alertness among our staff stemming from periodic laboratory checks, may have played a part in shortening or aborting the course of jaundice or other serious complications.

Table 4 summarizes the data of the 13 cases of jaundice during the 18 month program. (In the same period, 9 cases of obstructive jaundice from other causes were present in the hospital.) No jaundice was noted before the critical 2nd or 3rd week as has been evident in other studies(14, 4b). Case 8, with a mild jaundice for a few weeks, was discovered by serial bilirubin tests after 66 days of treatment. This late onset is not noted in other published reports.

Factors of age, sex and race were not significant among the 13 icteric cases. The dosage conformed to the average range except that Case 2 received only 1,300 mgm. in 26 days but had an elevated bilirubin for 350 days. In this patient, the drug had been continued through oversight for 8 days after the onset of jaundice. In contrast, Case 8 received over 26,000 mgm. before developing mild jaundice of short duration. The same case, on a second course of half the previous dosage, started 6 days after jaundice abated, showed normal liver function tests in the subsequent 2 months.

Toxic signs and symptoms associated with jaundice are outlined in Table 5. The subjective symptoms, as in most psychotics, were difficult to grade. They largely disappeared in a few days to a week after stopping medication.

Among the 1,215 cases in Determinate Phase 3, that had received serial liver function tests, there were 14 additional patients with mild elevation of serum bilirubin on treatment; 5 had values between 2 and 4 mgms/% and 9 cases between 1.25 and 2.

TABLE 4
DOSAGE AND LIVER FUNCTION TESTS, 13 JAUNDICED CASES IN 3,014 TREATED

Case	Age	M.	F.	Chlorpromazine			Jaundice			Alkaline phosphatase, peak units/100 Ml	
				Daily amount—mgm.			Onset days	Duration, days	Bilirubin, peak Mg/100 Ml		Week
				Min.	Max.	Average					
1.	47	—	x	100	300	200	11	65	8.6	3rd	15.2
2.	59	—	x	25	100	50	24	350	26.4	4th	21.0
3.	33	x	—	50	300	200	15	64	12.0	3rd	16.0
4.	26	—	x	100	200	150	21	60	7.5	3rd	16.2
5.	39	x	—	100	200	150	25	70	20.	5th	14.9
6.	43	x	—	25	300	100	31	40	9.7	5th	12.5
7.	41	x	—	75	200	200	22	130	36.0 ^a	9th	10.1
8.	35	—	x	400	400	400	66	18 ^b	7.41	10th	14.8
9.	45	—	x	400	400	400	20	10	15.0	3rd	32.4
10.	66	—	x	200	200	200	24	7	12.07	4th	28.0
11.	48	—	x	200	400	300	18	6	7.23	3rd	24.0
12.	45	x	—	300	300	300	14	6	4.06	2nd	40.0
13.	36	—	x	300	300	300	18	12	9.52	3rd	18.9
Average	43	—	—	175	277	290	23	64	13.49	5th	20.3
Low	26	—	—	—	—	—	11	6	4.06	2nd	10.1
High	66	—	—	—	—	—	66	350	33.70	10th	40.0

^a Normal Bilirubin on 14th day of treatment. On 22nd day bilirubin of 18.

^b 6 days after jaundice subsided, a second course of 200 mgm. daily for 60 days gave no recurrence of jaundice.

^c Received Chlorpromazine for 13 days before admission. Jaundice noticed about 7 days after admission.

TABLE 5
SYMPTOMS AMONG 13 JAUNDICED CASES

	In week before jaundice no. cases	During jaundice no. cases
Anorexia	9	10
Nausea	8	11
Vomiting	4	7
Abdominal pain	4	7
Weakness	5	7
Diarrhea	4	5
Fever	4	2
Malaise	3	3
Itching	2	4
Rash	2	2
Weight loss	2	5
Tremors	—	2

In the face of continued treatment, these values commonly fell below 1 mgm. in a few days or weeks, except in one case where the bilirubin stayed above 2 mgms. for 62 days; another with 2.5 mgm. found in the second week of therapy, dropped below 1 mgm. two days later. Among the pre-treatment controls there were 18 patients with bilirubin values between 1 and 1.5 who showed no rise during treatment.

A statistical evaluation of the collected serum bilirubin readings during Phase 3 among 1,215 patients, including 7 jaundiced cases, has been made by Cares and Newman(11). They found that the mean serum bilirubin values showed no significant difference from the control values. Viewed as a whole, the treated group experienced negligible rises of serum bilirubin during the first weeks and months.

Correlations of Jaundice.—(a) *Onset and Duration:* The onset is calculated in Table 4 from the first day of treatment. Case 1, icteric on the 11th day, remained so for 65 days. Case 2, with no jaundice until the 24th day, was icteric for almost a year. In case 8, with the latest onset, 66 days, jaundice lasted only 18 days. No consistent relationship could be found.

(b) *Total Dosage and Duration:* Case 2, with the lowest total dose, had jaundice for 350 days while in Case 8, receiving the greatest dose, icterus lasted 18 days. Case 7 received 4,250 mgms. and jaundice persisted for 120 days. No relation existed between the total dosage and the period of jaundice.

(c) *Intensity of Jaundice and Duration:*

Cases 2 and 7, with high bilirubin values, remained icteric considerably longer than Cases 4, 10 and 12 with medium or low values. This conforms with the course of icterus in non-chlorpromazine conditions.

(d) *Bilirubin and phosphatase tests:* All cases with jaundice showed elevated alkaline phosphatase roughly paralleling the rise of bilirubin. This is amplified below.

The jaundice caused by chlorpromazine is a highly individual feature of acceptably low incidence without desirable stigmata of predilection. Its mechanism is that of an intra-hepatic biliary obstruction (3c), reversible in nature. We agree with other workers(9, 15) that the jaundice is an expression of an unpredictable drug idiosyncrasy, comparable to the occasional reaction seen in the use of thiouracil, methyltestosterone and certain arsenicals.

Serum Alkaline Phosphatase.—It was evident quite early in the 18-month program that one effect of chlorpromazine was a frequent elevation of the serum alkaline phosphatase. This was intercurrently confirmed in late 1955 by Stacey and associates(14) who were impressed by hyperphosphatasemia occurring at or before the rise in bilirubin. In 7 of their 70 patients subjected to serial liver function tests, a rise in serum alkaline phosphatase was manifested between the 9th and 19th day of treatment. In contrast, a recent study of hepatic pathology in 4 cases of jaundice, showed normal alkaline phosphatase levels with high total bilirubin values(3c). Contrary to Goldenberg's(16) recommendations, we purposely did not stop treatment when phosphatase readings were high, provided the serum bilirubin stayed normal. This was done to ascertain the frequency of icterus associated with phosphatase rises, as seen in Table 6.

The normal values in this table for serum alkaline phosphatase are from those given by Goldenberg(16). However, normal values in our laboratory with this same procedure, ranged between 0.8 and 6.4 units with a mean of 3.1 on 469 pretreatment determinations. None of this screened group had any manifest liver or bone pathology.

The normal upper limit of serum alkaline phosphatase varies with the method and the

TABLE 6

SERUM ALKALINE PHOSPHATASE, GOLDENBERG UNITS/100 ML. DETERMINATE PHASE 3

Group	Total cases	Elevated values *					
		Low-range		Medium range		High range	
		3.9-5.5	%	5.5-8	%	Over 8	%
A—Controls (pre-treatment)	469	61	13.0	14	3.1	1	.2
B—Treated	1,215	179	14.7	89	7.3	58	4.8
C—Jaundice (in 3,014 cases)	13	—	—	—	—	13	—
Totals		240		103		72	

* Maximum reading in 2 to 8 determinations, each case. Normal range .9 to 3.9 units. On treatment, values to 5 are common. Above 5.5 units, treatment not recommended by Goldenberg.

particular laboratory.³ The Goldenberg procedure yields values corresponding to the Bodansky method. Bodansky phosphatase values of less than 7 units are considered to be of little clinical significance in the absence of other relevant findings. Table 6 indicates that the serum alkaline phosphatase may rise in some cases on chlorpromazine treatment.

In serial liver function tests, 7 of 70 cases treated by Stacey's group(14) had elevated serum alkaline phosphatase considered unrelated to a rise in serum bilirubin. In a statistical computation on our 1,215 cases, Carens and Newman(11) found a positive correlation of 0.51 (as opposed to $\pm .2$ or $\pm .3$ attributable to pure chance). This figure is too low to be of clinical value. Among the 72 cases listed in Table 6, with over 8 phosphatase units, 13 had jaundice, a frequency of less than 1 in 5.

The significance of elevated alkaline phosphatase as an indicator of impending jaundice from chlorpromazine is not pronounced. In Table 6, there is doubling of the frequency in the middle range, 5.5-8 units, over the control group. The rise usually occurred in the first 3 weeks on treatment. We had 2 cases with serum bilirubin values below 1 mgm. that had over 20 phosphatase units repeatedly during several months on treatment. Normal phosphatase readings (below 3.9) with a rise up to 3 mgms./% of bilirubin were encountered in 8 of the 14 subicteric cases discussed above. The weak relation existing between serum bilirubin and alkaline phosphatase, in our large series of tests, was of no help in predicting toxic jaundice.

³ Checked in Goldenberg's laboratory, our sera showed an average reading .2 unit lower than our own findings of alkaline phosphatase, a reasonable deviation between laboratories.

Leukopenia and Altered Hemograms.

Leukopenia and agranulocytosis have been reported in chlorpromazine therapy but quantitative changes are often not mentioned. Denber and Bird noted 2 cases, simply labeled as leukopenia, among 1,300 treated. Two recently reported deaths from agranulocytosis following 2 months of chlorpromazine administration(17), point up the need for repeated blood cell counts, certainly during the first 3 or 4 months. During Phase 2, no case with less than 4,000 leukocytes was present among 1,063 cases started on treatment. In Phase 3, 2 to 8 complete blood counts were done on the 1,215 patients and 2 cases of severe neutropenia and agranulopenia were found. Secondary anemia, stemming from the use of the drug did not occur in any of the 3,014 cases.

Our laboratory files were reviewed for the incidence of leukopenia and neutropenia on a control group in Phase 3. All definite blood dyscrasias or evident systemic disorders inducing depressed leukocyte values were excluded from this group, which consisted of 757 recent hospital admissions and 490 patients in the week before starting chlorpromazine, 1,247 in all. The comparative figures comprise Table 7.

Among the 1,247 controls, 11.5% had counts between 4,000 and 5,000 leukocytes/cu.mm. compared with 22.6% among the treated cases. Between 3,000 and 4,000 w.b.c., the percentage is respectively 1.4 and 2.5. The incidence of leukopenia present in the control group has been consistent in our hospital for the past 5 years, since 35% of admissions are over 60 years of age, in whom mild anemia and leukopenia are not infrequent. Among the 490 cases who had pretreatment blood counts, a good proportion

TABLE 7

LEUKOPENIA AND NEUTROPENIA, DETERMINATE PHASE 3
(Minimum Values in Serial Counts, cu. mm.)

Group	Total cases	4M-5M w.b.c.	%	Neutrophils-%	3M-4M w.b.c.	%	Neutrophils-%	2M-3M w.b.c.	Neutrophils-%	1M-2M
Control ...	1,247	143	11.5	38-84	17	1.4	42-74	2	38-44	—
Treated ...	1,215	275	22.6	34-82	30	2.5	28-68	4	22-46	2*

* One case had 1,650 w.b.c. with 4% neutrophils; the second case, 1,800 w.b.c. with 12% neutrophils.

had been hospitalized 6 or more months. Many of these reflected the mild malnutrition often seen in mental patients.

In Table 7, the incidence of leukopenia is roughly doubled during chlorpromazine treatment. Leukopenia, from 2,000 to 3,000 white blood cells per cu. mm., occurred during therapy in 4 patients. Counts below 2,000 cells, with marked neutropenia, developed in 2 of 1,215 treated cases. In the 18-months' study, one additional case of leukopenia with less than 2,000 cells was incidental to jaundice (Case 2—Table 4). Thus, pronounced leukopenia was seen in only 3 of 3,014 treated. The leukocyte count returned to normal within a month after stopping medication, following simple supportive therapy.

No instance of drug-induced leukocytic depression appeared after the third month. Serial leukocyte counts were considered essential in these first 3 or 4 months since the onset of leukopenia was insidious. Eosinophilia up to 6% was present in less than 25 cases and was commonly associated with skin rashes.

CONCLUSIONS

1. There were 3,014 cases admitted to treatment with chlorpromazine in doses of 200 to 400 mgm. daily during an 18-month period beginning January, 1955.

2. Response to treatment was best in agitated states of most mental disease categories. It was poorest in akinetic states with a good proportion showing a deepening of their depression. Side-effects were infrequent and not serious, appearing in the first 2 weeks and often subsiding on continued therapy. There were no permanent sequelae even after more than 18 months of medication.

3. Jaundice occurred in 13 patients, an incidence of .43%. No relation was found

between the jaundice and amount or duration of dosage.

4. Leukopenia below 2,000 white blood cells cu. mm. was found in 3 patients (.11%) all of whom recovered on withdrawal of treatment.

5. Serial tests for total serum bilirubin, serum alkaline phosphatase plus complete blood cell counts were done on 1,215 cases. These periodic checks may have helped in maintaining a low incidence of toxic complications by sustaining clinical alertness.

6. During chlorpromazine therapy, the serum alkaline phosphatase rose more frequently than did the total serum bilirubin. Only one-fifth of the cases with alkaline phosphatase values over 8 units were jaundiced, a weak positive correlation.

7. Serial serum bilirubin and leukocyte counts during the first 4 months are useful in detecting the onset of toxic jaundice and/or leukopenia.

ADDENDUM

Two months and 320 treated cases after the close of the above period of survey, the first fatality occurred. This was a fulminating agranulocytosis in the 7th week of treatment.

A.T., a white female aged 50, with a psychosis due to epilepsy, had been on dilantin therapy since 1941. Chlorpromazine, 300 mgm. daily, was added beginning August 17, 1956. The pretreatment blood count and serum bilirubin were normal. On the 35th day on chlorpromazine, the leukocytes were 5,700/cu.mm. with 64% neutrophils, serum bilirubin .25 mgm./% and serum alkaline phosphatase 7.25 units (Goldenberg). On October 8, the 53rd day of medication, she suddenly showed a fever of 104° with pharyngitis, submaxillary lymphadenitis and mild jaundice. A blood count revealed only 450 leukocytes with no granulocytes. The total serum bilirubin was 9 mgms., the phosphatase 7.44 units. With antibiotics and supportive therapy, there was some improvement in the last 2 days. A repeat blood count on October 11, 1956 disclosed 825 white

blood cells with no granulocytes. The patient died October 12, 57 days after beginning chlorpromazine medication. Autopsy findings confirmed the diagnosis of agranulocytosis.

As 443 new patients had been admitted to chlorpromazine therapy from July to September 1956, this is the only death implicating chlorpromazine among 3,457 patients treated from January 1, 1955.

The consistent cooperation of Dr. J. Rothery Haight, Clinical Director, is gratefully acknowledged.

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THE ANTIDOTAL ACTION OF SODIUM SUCCINATE IN THE Mescaline PSYCHOSIS¹

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The study of the experimental psychoses has already advanced our understanding of psychopathology. The exact relevance of the experimental psychoses to the problems of naturally occurring psychoses, such as schizophrenia, remains unclear. Nevertheless these two types of states have enough psychopathology in common to warrant much further research. The antidotes to the experimental psychoses deserve attention because of the understanding which they may give of the mode of action of the hallucinogenic drugs, and because of their possible eventual relevance to the biochemical treatment of natural psychoses.

Previous authors have described studies of several antidotes to the experimental psychoses. Thus nicotinic acid has some antidotal action in the lysergic acid diethylamide psychosis (1); chlorpromazine (2, 3) and sodium amytal (4) have some antidotal action in the mescaline psychosis; Frenkel has some antidotal action on both the lysergic acid diethylamide psychosis and the mescaline psychosis (5).

Quastel and Wheatley (6) demonstrated that the barbiturates and certain other narcotic amines, including mescaline, do not inhibit the oxidation of succinate as they do that of glucose, lactate and pyruvate. This led to the use of sodium succinate in antagonizing barbiturate anesthesia and poisoning in animals (7, 8, 9) and man (7, 10, 11). Schueler (12) repeated and confirmed the *in vitro* experiments of Quastel and Wheatley mentioned above. He then conducted four experiments on human subjects in whom he demonstrated a definite antidotal effect of sodium succinate on the symptoms of the

mescaline intoxication. We report in this article a series of experiments which have repeated and somewhat extended Schueler's observations.

METHOD

Subjects.—The 12 subjects were volunteers drawn from the staff of the department of psychiatry and neurology of the Louisiana State University School of Medicine and from the medical students of the School of Medicine. All were in good health physically and between the ages of 20 and 35. Ten were men and two were women.

Procedure.—Each subject was given 400 mgm. mescaline sulfate orally on two different days. The interval between experiments varied from a week to several months. Two observers studied the subjects and made notes of their behavior including verbal productions throughout the entire period of the effects of the drug until the effects were judged to have worn off sufficiently for the subjects to leave the experimental room and return home. This period usually varied from 8 to 10 hours, rarely longer. On one of the two experimental days each subject was given an injection of sodium succinate intravenously. A 30% solution (Brewer) was used. The dose of sodium succinate varied from 10 grams in one subject to 39 grams in another. Most subjects received 12 to 18 grams. The sodium succinate was administered slowly over periods of 30 to 90 minutes.

RESULTS

Effects of Mescaline.—The observed effects of mescaline on our subjects did not differ from those reported by other authors and are well enough known not to need repeating here. We shall add only that our subjects showed a wide variety of reactions to the mescaline, a fact to which little attention has so far been paid. Moreover, individual subjects showed different reactions on

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different days. Our current work studies these differences further in a project combining psychological and biochemical techniques. We hope to clarify some of the factors responsible for the marked differences in reactions between different subjects. We mention this here because we observed an equally great diversity of response to the injection of sodium succinate.

Immediate Antidotal Action of Sodium Succinate.—We observed some antidotal action of sodium succinate in each of our subjects. However, the action varied rather widely and ranged from a slight antagonistic action to an almost complete erasure of the effects of the mescaline. The subjects themselves noticed the effects of the sodium succinate injections more rapidly and more markedly than the observers. They would often comment on the change spontaneously. Typical comments after receiving the sodium succinate were the following: "Things seem more normal. The colors are drab," "I feel like I am coming out of it. I feel definitely clearer," "Things seem much more real now. The walls don't move any more," "The color which was associated with the shapes left." The subjects noticed changes especially in their visual perceptions and in their moods. However, other aspects of the mescaline intoxication, such as ability to concentrate and "the sense of reality" were also affected by the succinate. The observers watching the subjects also noticed changes in their behavior, often within a few minutes after they received the succinate. They usually became much less expansive and less talkative. This effect merged with the fatigue induced by the sodium succinate (discussed further below), so that the subjects frequently became sleepy after the succinate injection.

Duration of the Antagonistic Effect of Sodium Succinate.—In some of the subjects the effects of the sodium succinate antagonism wore off within an hour or two and this led to a return of the mescaline effects. A second injection of sodium succinate repeated the earlier effect, but again, after another interval, the mescaline effects might return once more. Such relapses into the mescaline effects were always milder than the original experience before the sodium succinate, but

they were nevertheless quite definite. The following extracts from one protocol exemplify this sequence:

Subject J.B., white male, aged 24.

- 7:00 a.m.... Took 400 mgm. mescaline orally.
- 8:00 a.m.... Tense and slightly elated. Nausea.
- 8:30 a.m.... Disturbances of depth perception. Increased imagery. Color illusions.
- 9:30 a.m.... Mood elated; talkative. Marked disturbance of time sense.
- 10:30 a.m.... Disturbances of body image as well as of space and time perceptions. Feelings of unreality. Difficulty in thinking.
- 11:30 a.m.... Continuing with the same symptoms. Given 24.0 grams sodium succinate intravenously.
- 12:00 p.m.... Quieter; less talkative. Says he is not nearly as elated as he was an hour ago. Nausea and vomiting.
- 12:30 p.m.... Still some residual symptoms of perceptual distortions.
- 12:50 p.m.... Thinks he is about his normal self now.
- 2:00 p.m.... Symptoms have begun to return. Feelings of unreality have returned. Experiences himself as if in a dream. Perceptual distortions returning. Somewhat depressed in mood.
- 3:00 p.m.... Symptoms continue about the same.
- 4:30 p.m.... Persistent feelings of unreality. His speech somewhat unclear and his voice mumbles.
- 5:00 p.m.... Is withdrawn from others in the room. Does not want to answer questions. Having synesthesiae (seeing voices).
- 5:30 p.m.... Given a further 6.0 grams of sodium succinate intravenously.
- 5:50 p.m.... Greatly increased sense of reality. Sensations of warmth in body and some nausea.
- 6:00 p.m.... Seems recovered sufficiently to be taken home. However, on the way home preoccupied with minute details. Focuses attention on some small object for a long time. Talkative and seems to want much reassurance.
- 8:00 p.m.... Persistent feelings of unreality gradually wearing off again.

Figure 1 illustrates diagrammatically the antagonistic effect of the sodium succinate injections with the return of mescaline effects afterwards.

Total Duration of Mescaline Effects With and Without Sodium Succinate.—We attempted to estimate the end-point of the mescaline effects on days when the subjects

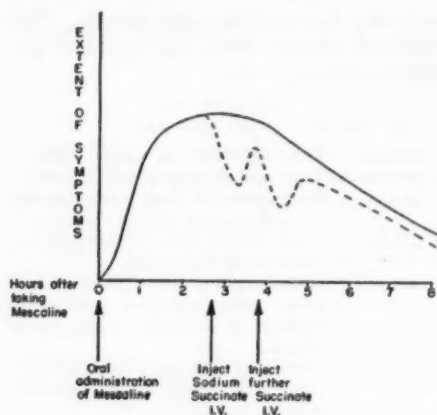


FIG. 1.—Diagrammatic representation of the course of mescaline intoxication with (dotted line) and without (unbroken line) the administration of sodium succinate. The figure illustrates the interference of the mescaline effects by the succinate, the return of the mescaline effects afterwards and the comparatively slight effect of the succinate on the total duration of the intoxication.

received sodium succinate and on days when they did not. This was easier to plan than to accomplish. The mescaline psychosis has no clear end-point. In our experience the psychosis evolves and declines approximately as follows. With oral administration there is a period of gradual onset lasting usually an hour to an hour and a half. There is then a period of maximal effects lasting an hour to an hour and a half. Following this the effects decline at first rather rapidly, but then much more slowly. This last period of some residual effects may last from 6 to 12 hours or longer. Several of our subjects noticed some (usually minor) effects for several days afterwards. One had a marked relapse after an interval of a day in which he was apparently normal. This gradual tapering of the effects makes impossible the assignment of a definite time for the end of the intoxication. It seemed easier to say when 80% of the effects had worn off than to say when they had worn off entirely; so we attempted to observe the time when the subjects, although not entirely normal, had largely emerged from the effects of the drug.

Having emphasized these limitations to our comparisons, we can present the following figures. As already mentioned, we con-

ducted 12 experiments without the administration of sodium succinate and 12 (on the same subjects) with its administration. The average duration of the effects (the end-point being taken when it was judged that 80% of the effects had gone) with the succinate was 9.1 hours and without the succinate was 9.8 hours. In 3 subjects the mescaline effects lasted longer with the succinate than without; in 2 subjects the effects lasted the same length of time with and without the succinate; in the remaining 7 subjects the effects lasted a shorter time with the succinate than without. These figures, and they must be considered approximate only, make clear that the succinate effect, definite as it was, did not appreciably shorten the total duration of the mescaline effects.

Incidental Effects of Succinate.—In addition to the antidotal effects of succinate we noticed other effects of this drug which have been described by other observers. The subjects sometimes complained of some pain in the arm of injection, especially if the injection was made rapidly which was usually not the case. They also exhibited marked flushing of the face and later of the neck and the extremities, especially the hands and feet. They usually felt warm, often sweated considerably, and were sometimes nauseated. (Mescaline also sometimes nauseated the subjects.) Respirations were usually increased and the subjects sometimes coughed and complained of an unpleasant salty taste. Almost invariably they experienced a strong sense of fatigue after the succinate injections. Again, mescaline alone frequently brought a sense of fatigue, but the succinate added greatly to this. The subjects often compared this symptom to their sensations after long walks, many sets of tennis, or heavy gardening. The combination of these symptoms frequently brought mild to moderate discomfort and sometimes some anxiety to the subjects.

Variations in the Antidotal Effect of Sodium Succinate.—As mentioned above, sodium succinate had some antidotal effects on each subject; the magnitude and duration of this effect varied considerably, as did the effects of the mescaline. The antidotal effect was not closely related to the size of the dose administered. For example, one of the most

marked antidotal effects occurred in a subject who was given 10 grams of sodium succinate. This amount in this subject produced a greater antidotal effect than that produced in the subject given the largest amount of succinate, 39 grams.

The variations in the antidotal effect of succinate did not appear correlated with the magnitude of the mescaline effect. Some subjects who were among those having the more marked effects from the mescaline did not show less response to the succinate than others who had milder effects from the mescaline. However, 2 subjects with marked effects from the mescaline stated that the injection of the succinate made their experience worse, that is, less pleasant. It seemed as if for these subjects the antidote only partially antagonized the mescaline effect. It deprived them of the mood elevating effect of the mescaline without entirely returning the perceptions and thought processes to normal. Other subjects found the side-effects of the succinate less pleasant than the euphoria which it interrupted. But although they felt worse after the succinate, we did not consider this a worsening of the mescaline intoxication. It was rather an incidental aspect of improvement.

Variations in the succinate effect were apparently not due to different rates of oxidizing and excreting the succinate. These variations were observed rather soon (*i.e.*, within 10 to 30 minutes) after the injection of the succinate and presumably before there had been time for much disposition of the succinate to have taken place.

DISCUSSION

The foregoing results confirm and add to Schueler's observation that sodium succinate has an antidotal effect on the mescaline psychosis. The mechanism of this effect remains unelucidated and is the object of further study in this department as is the wide diversity of responses both to mescaline and to succinate in different subjects. Two explanations which have been suggested to us to account for the effect of succinate we believe do not apply. The first is that the succinate acts as a stressor to the organism and in a sense "shocks" the patient out of his psy-

chosis. It is true that strong and even mild stimuli such as talking to the subjects tend to break up some of the symptoms of the mescaline effect. The subjects almost invariably report that they feel different and that "things seem more real and less dream-like" when someone is talking to them. And conversely, when they are left alone for a time or when they close their eyes, they tend to drift off into reveries if not actual dreams. It is also true that the succinate induces some associated unpleasant physical symptoms to which we have alluded above. However, we do not believe that these symptoms acting as stressful stimuli account for the antidotal effect. We observed an antidotal effect in subjects who experienced little of the kind of discomfort we have described. And in other subjects some of the antidotal effect was observed before the subjects experienced any significant discomfort. We have also considered a second suggestion that the antidotal effect of succinate derives from its alkalinizing action. We have attempted to test this hypothesis in studies to be reported later. In this place we shall say only that these studies fail to support this hypothesis.

At present, therefore, we believe the most plausible hypothesis of the antidotal action of succinate is that of Quastel and Wheatley and of Schueler. This is that the succinate provides a substrate for oxidation in brain tissues when the oxidation of glucose, lactate and pyruvate has been depressed by the mescaline. Further confirmation of this hypothesis will contribute to our knowledge of the mode of action of mescaline and allied drugs.

We have considered the relevance of these studies to schizophrenia. Osmond and Smythies proposed that the symptoms of schizophrenia are produced by the action of a substance similar to mescaline produced within the body during stress (13, 14). Such a substance could be a derivative of epinephrine or a by-product of its production. If such a substance acts through depressing oxidation in the central nervous system as mescaline appears to do, then succinate might be expected to antagonize it. Succinate has already been used in a small number of cases of mental disorder (15, 16) and beneficial effects reported. We plan to expand the

present studies to include observations of the effects of succinate on various patients of the group of schizophrenias.

SUMMARY AND CONCLUSIONS

1. Sodium succinate was found to have a definite antidotal effect on the mescaline psychosis in each of 12 subjects.

2. The effect varied greatly in different subjects. Moreover, the effect was rather transient and there was little shortening of the total duration of mescaline effect.

3. The most plausible hypothesis of the succinate effect is that succinate provides a substrate for oxidation in the brain tissues when the oxidation of other substrates, *e.g.*, glucose, lactate and pyruvate has been depressed by the mescaline.

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THE PLACE OF RESERPINE IN THE TREATMENT OF THE CHRONIC PSYCHOTIC PATIENT

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DONALD WALTON, B. A.

In the past few years a stream of reports concerning the use of reserpine in psychiatry has appeared. Remarkably favourable claims for its ameliorative effect on the behaviour of grossly disturbed psychotic patients have been made, and astonishing successes described. Although our study covers much well traversed ground we are publishing our results because they are at variance with, and much more conservative than, the findings of many similar studies. This report is divided into Part I, a controlled study and Part II, an uncontrolled study.

PART I

CLINICAL MATERIAL

The material was made up of 20 female patients suffering from chronic and intractable schizophrenia who were selected not on diagnostic grounds but because they were regarded by the nursing staff, who largely made the selection, as presenting exceptionally difficult nursing problems. Fifteen showed behaviour characterized by restlessness, overactivity, noisiness, and a tendency to strike out if carelessly or tactlessly handled. The other five were predominantly withdrawn, self-absorbed, difficult if not impossible to occupy, and required supervision with feeding and dressing. Five patients were incontinent, 2 persistently, 3 occasionally. Their age range was from 31 to 62 years with a mean of 45.9 years. Their duration of hospitalisation ranged from 2 to 29 years with a mean of 13.4 years.

Independently of, and prior to this trial 10 patients, because of their grossly disturbed behaviour, had been recommended for leucotomy by a majority of the clinical staff of the hospital. Eleven were on regular heavy sedation, mainly barbiturates, throughout the day, the others as dictated by changes in their behavior. Eleven had received either

electroshock or insulin coma therapy, at some time during their stay in hospital, without improvement.

METHOD OF INVESTIGATION

Before entering the trial all sedation was withdrawn. For an initial period of 4 weeks each patient was studied in order to establish a base line for her behaviour, blood pressure, pulse rate, and weight, and to note any variation which might otherwise have been attributed to the drug. Then a placebo, indistinguishable by patients and staff from reserpine, was given to 10 of the patients, the active preparation, reserpine, being administered to the other 10. After 3 weeks, placebo and drug were alternated, and this substitution was maintained for 3 weeks. Therefore, each patient acted as her own control, and at any one given time, half the patients were receiving the inert tablets, the other half the active preparation.

At the time the trial was undertaken there was no indication in the literature as to the effective dosage of the drug. Dosage was therefore, a matter of trial and error. Administration was begun with 1 mgm. b.d., this was increased to 1 mgm. t.i.d. after a week and for the third and final week, 1 mgm. q.i.d. was given. In 2 patients, this dosage led to marked cardiovascular changes, and could not be maintained. Tablets were prescribed according to the hospital record number, only one of us (C.G.) and the hospital pharmacist knew whether a patient was on the active or inert preparation.

Three times a week the mental state of each patient was systematically assessed by one of us (G.P.E.) by ordinary clinical methods combined with the use of a modified version of the Worcester Rating Scale (4). The day nursing staff made daily notes, and in addition rated each patient on an adapted version of the Johns Hopkins Hospital Behaviour Chart (6). The night staff noted the hours of sleep, and any dis-

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turbed behaviour at night. All information thus obtained was taken into account in determining whether any change had occurred in the patient's mental state. Weights were recorded weekly, the blood pressure thrice weekly, the pulse rate morning and evening.

FINDINGS

Mental.—Patients who had their customary sedation withdrawn showed a shortlived temporary exacerbation of symptoms following which they reverted to their former patterns of behaviour. During the initial period of observation it appeared in a general way that all were slightly better. This slight improvement was attributed to the increased interest taken by the nursing and medical staff in the patients.

In 16 patients no change due to the drug was observed. Four showed slight but definite improvement. This was attributed to the drug as it did not occur during the preliminary period of observation, nor when the placebo was exhibited, also the change was not maintained subsequent to the withdrawal of the drug, nor following the substitution of the drug by placebo. No patient improved whilst on placebo. The change in 3 patients was a damping down of their former restless, overactive and noisy behaviour. One patient who had previously been mute, and whose only activity was to continually tear her clothing and pull her hair out, ceased to indulge in these activities, become responsive, replied to questions, made spontaneous conversation and took an increased interest in her surroundings. No fundamental change in the basic illness occurred, improvement being entirely symptomatic.

Physical.—Weight: Despite improved appetite as indicated by increased food consumption, no significant changes in weight occurred. Those which were recorded could be attributed to chance variation, and not necessarily to the influence of reserpine. It is possible that the absence of significant weight change may, in part at least, be a function of the short time interval covered by this investigation.

Cardiovascular: The cardiovascular changes are summarised in Tables 1 and 2. The patients have been divided into two

TABLE 1
GROUP A MEAN AGE: 49.9

	No drug	Reserpine	Placebo	Degree of significance
Mean systolic . .	139.8	117.1	111.8	F. ratio 3.29*
Mean diastolic .	90.6	75.3	75.6	F. ratio 2.18 not significant
Mean plus rate.	76.7	64.9	68.1	F. ratio 23.10†

* Significant approx. .05 level of confidence.

† Significant beyond. .01 level of confidence.

groups, A and B, depending on whether they received first the inert or active preparation.

The systolic changes: There is a tendency for reserpine to reduce the systolic pressures in both groups. Both groups show changes in the same direction and both are almost at the same level of significance. The effect of reserpine is significantly greater than the effect of the placebo, the value of *t*, the critical ratio, being 6.5, significant beyond the 0.01 level of confidence. The rank correlation between initial systolic level and the size of the subsequent drop under reserpine is significant beyond the .01 level of confidence (+.77). Those in this sample with the largest systolic blood pressure, tend to show the largest falls.

Diastolic changes: Group A with the higher mean diastolic pressure, does not show any significant change under reserpine. Group B, with a lower group mean diastolic shows a very significant drop. A statistical explanation of this difference can be gained from an examination of the size of the mean diastolic pressures of the two groups. Whilst there is approximately a 15 points drop for groups A and B, a drop of 15 in Group B

TABLE 2
GROUP B MEAN AGE: 41.9

	No drug	Placebo	Reserpine	Degree of significance
Mean systolic . .	111.3	105.3	92.3	F. ratio 3.02*
Mean diastolic . .	76.2	73.1	60.6	F. ratio 6.80†
Mean plus rate . .	77.3	77.9	70.9	F. ratio 7.45†

* Significant approx. .05 level of confidence.

† Significant beyond. .01 level of confidence.

is proportionately greater than a drop of 15 in Group A.

One possible physiological explanation of these changes can be postulated from the two rank correlations calculated:

(a) Between diastolic level and subsequent drop.

(b) Between the size of diastolic drop and age of the subject. They were $+ .29$ and $+ .37$ respectively. Neither is significant. It is suggested that the older subjects showing the largest diastolic pressures (Group A, mean ages: 49.9, Group B, mean age: 41.9) are less likely to show any significant reduction, whilst the younger subjects with less functional resistance and lower diastolics, are more likely to do so. In the older age groups one is, therefore, perhaps less able to predict with accuracy that a fall in diastolic pressure will take place after exhibition of reserpine. In the younger group, with these chance factors minimised, prediction would appear more accurate and certain.

The value of t calculated for the significance of the difference of the changes effected by reserpine and placebo is 5.6. This is significant beyond the .01 level of confidence and shows that the reduction in diastolic pressure by reserpine is significantly greater than that effected by suggestibility, increased medical care, etc. during the administration of the placebo.

Pulse Changes: In Groups A and B the pulse rate dropped very significantly. There can be little doubt that this is attributable to the direct effect of the drug. In Group A when reserpine was withdrawn and the placebo given in its place, the pulse rate rose from a group mean of 64.9 to 68.1. Similarly in Group B, under the effect of the placebo the mean pulse rate remained approximately constant at the "no drug" level. After the introduction of reserpine the mean pulse rate fell from 77.9 to 70.9.

Incontinence: No change.

Side-Effects: Sudden and alarming bradycardia was observed in one patient. This was noted on the fourth morning of the trial, by which time she had received 6 mgms. of reserpine. Her pulse rate, which had constantly centred around the 70 mark fell to 38. At this stage she looked pale and ill. An attack of generalised bodily tremor last-

ing about 10 minutes was observed by the nursing staff. She stated that she felt sick and that she was too ill to shout or move about. Prior to this her behaviour was described as overactive, restless and noisy. She would spend most of the day shouting out of windows about atomic rays. The dose of reserpine was reduced to $\frac{1}{2}$ mgm. b.d. and it was not found possible subsequently to exceed $\frac{1}{2}$ mgm. t.d.s. without marked bradycardia. As soon as her pulse rate reached 50, there was a return to her very disturbed behaviour.

In another patient, it was not found possible to exceed a dose of 1 mgm. t.d.s. without causing a similar bradycardia. A physically healthy 32-year-old man (not included in this series), suffering from a crippling obsessional illness associated with considerable tension, developed a marked bradycardia—pulse rate 40, and a fall in blood pressure from 110/70 to 50/40, on a dose of 4 mgms. daily. He described a marked diminution of tension, this because he felt drained of all energy. Like the patient in this series, he looked pale and ill.

Drowsiness was observed in 6 patients. This was noticed on the third or fourth day. It was never troublesome, and passed off in 2 or 3 days without a reduction in the dosage of the drug.

No other side effects were recorded. This does not mean they did not occur but may merely be a reflection of the failure of such patients to report departure from their customary feeling state.

PART II

MATERIAL AND METHOD

This part of the study covers all cases at the hospital (43) treated with reserpine. Of these 9 had to be excluded because of inadequate dosage or too short a period of treatment. The remaining 34 (13 female, 21 male) had been diagnosed as suffering from schizophrenia, and were regarded as incurable. They had been selected on the grounds of the chronicity and intractability of their illness, and also because of their tendency to be a greater nursing problem than other patients either by virtue of overactivity or withdrawal. Their age range was from 22

to 67 years with a mean of 40.6 years. Their duration of hospitalisation ranged from 1 to 37 years with a mean of 9.4 years.

Twenty-seven had previously been treated with electroshock and/or insulin coma therapy, 8 had been subjected to prefrontal leucotomy, and most had been and were still on large doses of barbiturates. Some had received more than one form of physical treatment *e.g.*, ECT. and PFL.

The average daily dose of reserpine was from 3 to 6 mgms. and all cases had been treated for at least 12 weeks, 15 for more than 6 months. The response to the drug was estimated on the basis of 1. Interview with the patient; 2. Discussion with the doctor and nurse caring for the patient; 3. The progress notes recorded in the patient's file.

FINDINGS

Twenty-one patients showed no change. Four were regarded as slightly worse. In general they were considered to be lazier, more lethargic and dirtier, less concerned about their personal appearance, or somewhat noisier. One patient was assessed as much improved. This indicated a major change in behaviour permitting him to be on ground parole and to go home at weekends. Whether this can be wholly ascribed to the drug is doubtful since a review of his record showed that similar improvements had spontaneously occurred in the past. Eight patients were slightly improved. These patients were described as being less restless, more composed, tidier and more consistent at their work tasks. None had undergone a major change. In all cases improvement was entirely symptomatic, and there was no modification of the basic illness.

There was no correlation between improvement, dosage and duration of treatment. Improvement tended to occur within the first 3 weeks and to be maintained. A turbulent phase was not observed.

DISCUSSION

It is worthwhile emphasising that the withdrawal of sedation, although given in large doses, and over long periods to control disturbed behaviour, led only to temporary

short-lived exacerbation of symptoms. It is our impression that patients from whom barbiturate drugs were withdrawn showed slight improvement when free from the toxic effect of these drugs. When sedative drugs have been prescribed for whatever reason, there seems to be a tendency at least in mental hospitals, for successive doctors automatically to repeat the prescription. Our experience indicates that such use of sedatives is to be deprecated, and that they are no substitute for good nursing and medical care.

Only 13 patients (4 in Part I, 9 in Part II) showed improvement. This somewhat disappointing result may indicate that reserpine is only of very limited value in the treatment of chronic psychotic reactions, and since the improvement was entirely symptomatic it seems reasonable to conclude that the drug has no effect on the disease process itself, and that its only action is to lessen the intensity of symptoms. Furthermore it is difficult to decide if the symptoms which it improves are due to the disease *per se*. It seems to us that its main effect is on the symptoms which arise as a direct result of the conditions which are imposed on psychotic patients, *i.e.*, overcrowded and locked wards. Disturbed patterns of behaviour would, we suggest, undoubtedly occur in 'normal' people under similar conditions. In short, we are not convinced that reserpine or any other drug currently available can take the place of an enlightened approach to the care of these patients. As our findings are much more conservative than the majority of reports published particularly in America (7, 8, 3), it could be argued that the relatively poor results obtained in this study were a function of the methods employed. We do not believe this can be sustained. Since marked physiological changes occurred in the patients in Part I we conclude that dosages of 3-6 mgms. are sufficient for the drug to produce its effect, and that consequently higher doses are not justified. Furthermore the exhibition of the drug for periods of 12 weeks and more as in Part II is adequate to allow the physiological changes induced by the drug to reach a maximum. If the patient is not showing an improvement after 12 weeks the drug should be withdrawn.

The difference between results obtained in

America and our findings may possibly be a reflection of a differing approach to the care of chronic psychotic patients. Mental hospitals in this country are smaller, and whilst locked and overcrowded wards exist, "maximum security" wards are unknown, and there is a growing tendency to abolish all locked wards. This has been successfully done in some British mental hospitals. Bell (1) has shown that the unlocking of wards produces results as gratifying and dramatic as those attributed to reserpine (7, 8, 3). This tends to confirm our impression that reserpine's greatest effect is on the symptoms which are the result of environmental conditions imposed on the patients. Sergeant (10) is of the opinion that fewer reports of good results from chlorpromazine and reserpine are to be expected in Great Britain than in the U.S.A. and France, because of a putative higher standard of care in Great Britain. Clearly this is impossible to confirm as the necessary information is beyond our knowledge.

On the basis of our findings it seems to us that reserpine is in no way curative, and has only a limited role to play in psychiatry. Nor should it be overlooked that it is a dangerous drug and may cause depression of suicidal intensity (9), and even cardiac failure due to water retention though given in small doses (5). The sequence of events following the introduction of a new drug is well described in the *British Medical Journal* (2). The initial flood of favourable reports dries up and becomes replaced by those of another kind, and what was once a cure-all ends either by falling into disrepute or being regarded as only of limited value. Excessive claims for the efficiency of new drugs whether made by manufacturers or physicians are to be deprecated. It is obviously undesirable for manufacturers to release drugs for general use until they have been subjected to adequate clinical trial preferably by some competent medical research organisation.

The cardiovascular changes (Part I) are of considerable interest. The main points emerging from the findings are the higher

the systolic and the lower the diastolic pressure, the greater the fall attributable to reserpine. This suggests the effect of the drug would be greatest in cases of hypertension in which the rise in systolic pressure is proportionally greater than the rise in diastolic pressure. In well established cases of hypertension with a persistently raised diastolic pressure it seems probable that a reduction in the systolic pressure alone would occur, and the diastolic pressure would remain unaltered.

Cases of choice for treatment with reserpine should on our findings prove to be the early borderline, or "prehypertensive" ones. The findings summarised in Table II indicate that reserpine continues to exert its hypotensive effect for some weeks after its withdrawal. Bradycardia occurred in all patients, and was moderate except in the 2 cases referred to earlier.

SUMMARY

The effect of reserpine on the behaviour of chronic psychotic patients has been investigated by means of a controlled, and an uncontrolled study. The results indicate that it is only of limited value in the treatment of such patients. The extremely favourable results obtained by other workers were not confirmed.

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CHRONIC PSYCHOSIS FOLLOWING EPILEPSY¹

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INTRODUCTION

The relationship of the chronic psychosis to epilepsy is a controversial subject. Such questions as "Is there a true chronic epileptic psychosis?" "Can epilepsy and schizophrenia or epilepsy and an affective psychosis co-exist?" and if so "How do they affect each other?" and "What is the relationship between epilepsy localised to or commencing in the temporal lobe and the functional psychoses?" are still unanswered. This is what I have attempted to do from the highly selected group of patients attending the Bethlem Royal and Maudsley Hospitals. The results are necessarily tentative, but I consider of sufficient interest to warrant fuller investigation in a larger and less highly selected group of patients.

REVIEW OF LITERATURE

Kraepelin(1) believed that there was a specific form of dementia which was the result of epilepsy and had to be differentiated from dementia praecox. Vorkastner(2) believed that there was a condition of mental deterioration following on epilepsy which sometimes took on a dementia praecox-like colouring. Krapf(3) considered that true schizophrenia does not occur in epileptics, epilepsy does not complicate schizophrenia, but schizophrenia-like symptoms may follow epilepsy. Glaus(4) was of the opinion that true schizophrenia and epilepsy could occur in the same patient as independent conditions. Gruhle(5) considered that cases occur where what appears to be schizophrenia is interwoven with epilepsy and leaves it open as to whether one postulates schizophrenia with secondary symptomatic epilepsy, or idiopathic epilepsy with secondary symptomatic schizophrenia, or an accidental combination of both complaints. He finds no phenomenological difference between the form of primary delusions in schizophrenia and epilepsy.

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More recently Alström(6), in his study of 897 unselected patients suffering from epilepsy at the Neurological Clinic of the Caroline Institute at the Serafimer Hospital, found 19 to be suffering from psychosis. They were diagnosed as follows: schizophrenia 7, dementia senilis 6, arteriosclerosis cerebri with psychosis 2, encephalitis lethargica 1 and alcoholic dementia 3. The author considers that this corresponds to what might be expected from a random sample of equal size taken from the general population. This is an important conclusion but loses value when it is remembered that all the cases attended a neurological clinic and were thus automatically a group with a disproportionately slight amount of mental illness. The patients with greater psychiatric disability would be more likely to come under the care of a psychiatrist.

Jones(7) in a comprehensive review of the literature concerning intellectual level, deterioration, specific disabilities and personality in epilepsy comes to the conclusion that there is no satisfactory evidence to support the view that epilepsy *per se* is responsible for intellectual deterioration, nor does he find validation for the classical concept of "the epileptic personality."

Hoch(8) dealing with the relationship between schizophrenia and epilepsy comes to the conclusion that they are two disorders which are not genetically related. His argument, based largely on the work of Conrad in epilepsy and Kallmann in schizophrenia, is as follows:

He takes the general average frequency of epilepsy as between 0.2 and 0.5% and that of schizophrenia as 0.85%. Hence he considers, before one may assume a genetic relationship between the two, there should be (a) an increase in the frequency of epilepsy in the blood relations of schizophrenics and the increase should be proportionate to the degree of consanguinity and (b) a similar increase in the frequency of schizophrenia among blood relations of epileptics. He finds neither condition fulfilled. He finds strong support for his hypothesis

in monovular twin studies. He quotes Conrad's figures of 66.6% concordance rate in epileptics (86.3% if restricted to idiopathic epilepsy), and Kallmann's figure of 81.7% concordance rate in schizophrenics, and points out that no case of epilepsy in the monovular co-twin of a schizophrenic nor any case of schizophrenia in the homozygous co-twin of an epileptic has been reported.

It appears from these results that patients with both epilepsy and a schizophrenic illness are so infrequent as not to alter the statistics significantly or that the diagnosis of epilepsy and schizophrenia have been regarded as being mutually exclusive. Of course if one subscribes to Krapf's view, epilepsy does not occur as a complication of schizophrenia but this is not the view held by such authorities as Kahlbaum(9) and Kraepelin(1) and more recently Esser quoted by Kalinowsky and Hoch(10).

There is a rapidly enlarging literature on the subject of the relationship between temporal lobe lesions with or without epilepsy and psychiatric disorder. Gibbs(11) reviewing 458 cases with EEG evidence of focal seizure discharge found the anterior temporal region the most vulnerable area of the cortex and that psychiatric disorder was more than three times commoner in cases with focal seizure activity in the temporal lobe than any other cortical area. He found such cases clinically indistinguishable from "purely psychiatric" disorders. He considers that the ictal or psychomotor phenomena accompanied by focal EEG abnormal activity and the non ictal psychiatric abnormalities although not temporally related, are anatomically associated.

Mulder and Daly(12) discuss 100 outpatients who had lesions of the temporal lobe and whose presenting complaints were usually thought to be psychiatric. The lesions were localised on the basis of a complete examination and included 24 tumours in the temporal lobe of the cerebrum, 23 atrophies of the temporal lobe and 53 lesions of the temporal lobe in which the underlying pathological process was obscure. A focus of abnormal electrical activity in one temporal lobe was found in 65 patients. Abnormal electrical activity in both temporal lobes was observed in 10 patients. Diffusely abnormal EEG tracings were seen in 7 patients. Six-

teen patients had normal records. They divide their patients into 2 groups, those with paroxysmal and those with non-paroxysmal symptoms. The latter consisted of 62 patients and are subdivided by the authors into 36 anxiety states, 16 reactive depressions and 20 schizoid disorders. They found only 2 of the schizoid group psychotic and of the whole series only 4 psychotic.

Hill(13), discussing surgery of temporal lobe epilepsy referring to the same clinical material but not with the same selective criteria as myself, is in agreement with Mulder and Daly, and Gibbs regarding the relationship between temporal lobe lesions and psychiatric disorders. He considers there is a greater incidence of personality disorders in those patients in whom the focus is placed posteriorly in the temporal lobe rather than towards the temporal pole. He also quotes Liddell's, at the time of his paper, unpublished work at Runwell Hospital. A temporal lobe EEG focus was found in 50% of his epileptic patients which comprise 4.3% of the hospital population. In 78% of those with temporal lobe foci behavioural automatisms occurred. Hill compares these figures with those given by Jasper, *et al.* (14), for the general epileptic population about 1 in 5 of whom are believed to have temporal lobe origin for their fits. He noted that out of 13 cases of epilepsy with psychosis personally observed, 11 demonstrated a temporal lobe origin for the seizures. Karagulla and Robertson(15) point out the similarity between some of the subjective experiences of temporal lobe epilepsy, spontaneous or electrically induced in patients subject to temporal lobe epilepsy and some schizophrenic symptoms.

Thus in my sampling of the literature on the subject of psychosis and epilepsy we have 5 approaches.

1. The Continental psychiatrists in the tradition of Kraepelin describe a series of cases in which they find features that look like epilepsy and schizophrenia and manipulate the facts in an attempt to fit them into their hypothesis that schizophrenia and epilepsy are disease entities with a specific organic basis.

2. The neurologist investigates statistically the patients attending his clinic and

finds no evidence that epilepsy predisposes to psychosis.

3. The psychologist finds no evidence of epilepsy causing intellectual impairment nor of a specific "epileptic personality."

4. The geneticist finds schizophrenia (and for that matter manic-depressive psychosis) and epilepsy unrelated conditions.

5. Workers with a clinical neurophysiological approach to the problem particularly with an emphasis on EEG studies find evidence to support the hypothesis that paroxysmal temporal lobe dysfunction is related to non-ictal psychiatric disorder.

Meduna's(16) hypothesis that schizophrenia and epilepsy were mutually incompatible conditions does not seem to be standing the test of time, but there appears to be little doubt that psychotic illnesses where there is a large affective element benefit from artificially induced convulsions(17, 10).

THE STUDY

Scope: The case records of all patients with a diagnosis of psychosis following on epilepsy and with the combined diagnoses of epilepsy and psychosis attending the Bethlem Royal Hospital and the Maudsley Hospital between January 1, 1949 and December 31, 1953 have been studied and the cases which satisfy the following criteria selected.

1. The epilepsy antedated the onset of the psychosis.

2. The patient continued to suffer from delusions for a period of at least one year.

This selection was decided upon to exclude (a) any patients with schizophrenia complicated by epileptic seizures and (b) the group of epileptic patients who develop an acute psychosis, typically with disorientation, delusions and hallucinations, which does not become chronic. Glaus(4) and Hill(18) have discussed the former and Cobb(19), Gibbs(11), Mulder and Daly(12) and Hill(13) the latter group.

Definitions and Criteria: For this investigation epilepsy is defined as a sudden alteration in, or loss of, consciousness accompanied by an abnormal paroxysmal discharge of the cortical grey matter. The essential criteria have been clinical; that is, an account by a reliable witness as well as the patient's own account. Electroencephalographic evidence was always present to support the diagnosis.

Clinical and EEG evidence was also used in postulating the commencement of the discharge in a local area of the cerebral cortex.

The psychosis with delusions, in all cases was considered to be of sufficient severity to have caused the patient to come to a psychiatrist irrespective of the epilepsy.

The classification has been as follows:

I. The cases that would have been diagnosed as schizophrenia (mostly "paranoid" due to the prominence of delusions) if no evidence of epilepsy had been present. In this I follow Eugen Bleuler(20) stressing particularly the first two of his fundamental symptoms, *i.e.*, disturbance of affect, particularly incongruity, or perhaps more usefully, inconsistency; (I introduce the idea of "inconsistency" rather than "incongruity" to overcome the difficulty that in a schizophrenic patient there may be undetectable congruity of mood and thought) and disturbance of thought, particularly of association. I also include Goldstein's(21) and Benjamin's(22) criteria of loss of conceptual thought as detected for example on asking the patient to give the meaning of a series of proverbs. Bleuler's third fundamental symptom of predilection for fantasy against reality or "autism" did not prove a useful concept. If delusions and possibly hallucinations were present along with the former 2 symptoms, a subjective evaluation of the patient's preference for reality or fantasy seemed to add nothing further to my assessment, nor was it found valuable in distinguishing such cases from the following group.

II. Cases of gradual onset arising out of an abnormal personality with delusions centered round relatively few primary false beliefs and with some degree of systematisation. Apart from these delusions the patient's thought processes were little disturbed and he was in a relatively normal relationship with his environment. Any disturbance of affect was considered to be secondary to the incapacitating nature of the illness or to the content of the delusions. These I call paranoid reactions.

III. Cases that would have been diagnosed as affective psychoses if no evidence of epilepsy had been present. In these cases there was a marked disturbance of mood, and delusions which were congruous with the dis-

turbance of mood. In this group there was no evidence of inconsistency or incongruity, in Bleuler's sense, of affect, nor involvement of conceptual or associative thought processes.

IV. Cases with unequivocal intellectual impairment, *i.e.*, dementia.

Results: Twelve cases satisfied my original criteria (see appendix). Ten have been examined by me. The eleventh, Case 6, at present in a mental hospital, has been reported on by the physician superintendent. The twelfth, Case 5, could not be traced but was adequately documented, and is included. If the epilepsy were ignored they could be fitted into the following diagnostic categories, by the standards laid down above.

I. Schizophrenics	8
II. Paranoid reactions	0
III. Affective psychosis	3
IV. Dementia	1

DISCUSSION

Eight of the above cases developed a clinical picture that in my opinion if epilepsy had not been present most psychiatrists would have called schizophrenic. In one, case 8, there might have been some difference of opinion as to whether or not he was suffering from a paranoid reaction. At present he does seem to be settling down to a well circumscribed paranoid system, centering round one delusional idea, but I feel it is legitimate to classify it as paranoid schizophrenia. The picture in 3 was predominately affective. One, case 9, was that of a depressive psychosis in a mentally backward patient. The other 2 cases, 10 and 11 are classified as hypomania. They have the features in common that the onset appears to have been in the form of a divine revelation and the delusions and affective abnormality appears to be related to this and a fixed idea that the patient has a mission. The remaining case, 12, is that of an undiagnosed dementing organic state with epilepsy antedating the clinical deterioration.

The population from which the above cases arise is made up as follows: 3,557 admissions (these figures exclude re-admissions apart from the period 1.8.1953—31.12.1953.); 12,015 outpatients (a number of outpatients subsequently became inpatients).

The number of patients suffering from

epilepsy was considered to be approximately 1,073 for the following reasons: for the period 1949-51 from the records department 223 had been diagnosed epilepsy. The number of patients attending the hospital has been steadily increasing so the figure arrived at by multiplying by 5/3 for correction from the period 1949-51 to the period 1949-53 is almost certainly lower than the correct one. This gives a figure of 373. Approximately 700 patients suffering from epilepsy are still attending the hospital several years after first attendance and are not included in the figures reaching the records department as their cases have not been "closed." (This source of error is excluded in my case material as I was working in the clinic for the epileptics of the hospital for the period 1.4.1953—31.1.1954 and any suitable cases are included.)

It is, therefore, considered justifiable to say that the 8 schizophrenic-like psychoses, 3 affective psychoses and 1 dementia with delusions occurred in a population of approximately 1,073 epileptic patients referred to the hospital.

Thus the incidence of schizophrenic-like conditions by my original criteria has an occurrence rate of approximately 0.75% in the epileptic population of this hospital. Hence I consider there is no evidence to suggest that chronic schizophrenic-like conditions occur more frequently in epileptics in the group investigated than schizophrenics in the general population (taking for example Kallmann's figure of 0.85%).

For the period 1949-53 the patients admitted to the hospital with a schizophrenic or affective illness (without epilepsy) of over 1 year's duration were given diagnoses as follows:

Schizophrenic disorders (dementia praecox) ..	167
Simple type	21
Hebephrenic type	27
Catatonic type	7
Paranoid type	76
Acute schizophrenic reaction	1
Latent schizophrenia	3
Schizo-affective psychosis	14
Other and unspecified	18
Manic-depressive reaction	121
Manic and circular	17
Depressive	95
Other	9

(These figures were obtained from the records department.)

Using this diagnostic scheme my 8 schizophrenic-like conditions would have been diagnosed hebephrenic or paranoid schizophrenics, and my 3 affective cases 2 manic and 1 depressive. (I combine hebephrenic and paranoid schizophrenia because of the difficulty in laying down mutually exclusive diagnostic criteria.)

Thus the patients with epilepsy developed 8 paranoid or hebephrenic-like conditions, 1 depressive and 2 manic conditions as compared with 103 paranoid and hebephrenic schizophrenics and 17 manic or circular and 95 depressive affective conditions in the patients with illness of comparable duration without epilepsy.

These figures show no statistically significant difference in their relationships but when taken in conjunction with Alstrom's figures (6), which include no affective breakdown they are suggestive that the relationship between the number of affective illnesses and schizophrenic illnesses in epileptics is less than in the epileptic free population. It also appears that chronic depressive psychoses severe enough to produce delusions are extremely rare in epileptics. There is a suggestion that the classical belief that religious delusions are common in epileptics may be based on a particular clinical pattern as in cases 10 and 11, which automatically grouped themselves in my category of hypomanic affective psychosis, comprising the entire group.

Of the schizophrenic group, 7 out of 8 have clinical and/or EEG evidence suggesting temporal lobe epilepsy and of the affective group 1 out of 3. This when compared with figure of 1 in 5 of the general epileptic population as given by Jasper, *et al.* (14), supports the theory that there is a relationship between psychosis following epilepsy and temporal lobe dysfunction.

The absence of evidence of an altered incidence of schizophrenia or schizophrenic-like condition in epileptic subjects from the general population and the evidence suggesting an increased incidence of temporal lobe epilepsy in the psychotic patients considered, suggests that epilepsy in patients who are liable to schizophrenia tends to manifest itself in the temporal lobe.

SUMMARY AND CONCLUSIONS

From a study of the literature and of the cases suffering from epilepsy which later developed chronic psychoses with delusions, no evidence was found to support either of the hypotheses implicit in earlier writings: that schizophrenia occurs more, or less, frequently in epileptics than in the general population; but there was a suggestion that affective psychoses occur less frequently, that depressive psychoses are very rare and that hypomanic psychoses may take a typical form of a divine revelation followed by elation and Messianic delusions. This last category is the only evidence to suggest a typical chronic epileptic psychosis.

No case suffering from a paranoid reaction of sufficient severity to satisfy my original criteria, that could not be classified as affective or schizophrenic, was found.

The high incidence of clinical and/or EEG evidence implicating the temporal lobe, supports the view that psychosis following epilepsy is related to temporal lobe dysfunction.

It is suggested that epilepsy in subjects liable to schizophrenia tends to manifest itself in the temporal lobe.

APPENDIX

THE CASES

I. Schizophrenia

CASE 1.—Mrs. G.L.K. Aged 35 years. Temporal lobe epilepsy, possibly relative to birth trauma, developing a psychosis in the late 20's indistinguishable from schizophrenia with hebephrenic and paranoid features. Coincidental with the development of the psychosis there was disappearance of the epilepsy.

CASE 2.—Miss D.E.L.L. Aged 32 years. Epilepsy, possibly idiopathic, with myoclonic features developing slowly a schizophrenic-like psychosis with a fairly well marked affective element. (Sphenoidal electroencephalography was not carried out).

CASE 3.—Mr. A.G.T.S. Aged 41 years. Sustained 2 severe head injuries, with a paranoid schizophrenic-like illness showing clinical and EEG evidence of temporal lobe epilepsy. The epilepsy commenced when patient was 11 years old, and the psychosis 27 years later. The head injuries postdated the onset of epilepsy by 10 and 12 years.

CASE 4.—Miss E.T. Aged 21 years. Temporal lobe epilepsy as a result of a complication of whooping cough, probably vascular, aged 1½ years, with a markedly abnormal personality developing into a paranoid schizophrenic-like illness. The

epilepsy dated from childhood while the psychosis was of a little over one year's duration.

CASE 5.—Miss O.M. Aged 22 years. Epilepsy with clinical and EEG evidence suggesting the origin in the temporal lobe, developing a paranoid schizophrenic type of illness. The epilepsy may have been post-traumatic, or a doubtful head injury may have resulted from an epileptic attack. The epilepsy dated from childhood and the psychosis had a duration of 5 years.

CASE 6.—Miss F.M.S. Aged 24 years. A typically schizophrenic type of psychosis developing in a patient with long standing epilepsy clinically very suggestive of temporal lobe origin without definite EEG proof, but with EEG and AEG suggesting the left hemisphere as the source. The epilepsy commenced when the patient was 2 years old. The psychosis was of 3 years duration.

CASE 7.—Mrs. D.C. Aged 32 years. Clinically temporal lobe epilepsy with later EEG evidence of temporal lobe foci, developing a paranoid schizophrenic-like illness with depressive features, within a few years of the onset of the epilepsy.

CASE 8.—Mr. L.W.H. Aged 43 years. Long standing (at least 30 years duration at onset of psychosis) epilepsy, temporal lobe in origin on clinical and EEG evidence. He developed a paranoid schizophrenic-like illness. This case is the nearest to a pure paranoid state in the series as the delusions tended to be systematised around one idea, but he showed definite loss of conceptual thought and incongruity of affect, and therefore is legitimately classified with the paranoid schizophrenic group.

II. Paranoid Reactions—Nil

III. Affective Psychosis

CASE 9.—Miss F.K.T. Aged 47 years. A chronic depressive psychosis in a patient of low intelligence with long standing (10 years at the onset of psychosis) epilepsy of obscure origin—possibly idiopathic.

CASE 10.—Mr. J.M.C. Aged 45 years. Chronic hypomanic state with religious and messianic delusions commencing soon after the onset of epilepsy when he was 36 years old. EEG evidence points to the epilepsy originating in the temporal lobe.

CASE 11.—Miss B.L. Aged 36 years. Symptomatic epilepsy following an undiagnosed (? venous thrombosis) organic lesion of the right side of the brain, aged 18 months, developing an affective psychosis mainly hypomanic, the delusions and hallucinations being mainly concerned with a religious theme and including the idea that she had a divine message which it was her duty to impart to the world.

IV. Dementia

CASE 12.—Miss I.S.C. Aged 31 years. An organic dementing condition with delusions and hallucinations developing a few years after the onset of epilepsy, aged 17 years. In spite of ventriculogram and cerebral biopsy the aetiology remains obscure.

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A STUDY OF THE TRANSFER OF LONG-HOSPITALIZED PATIENTS TO A CONVALESCENT SERVICE

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Chronic patients in state mental hospitals (however "chronic" may be defined) are usually patients who live in wards less adequately staffed, and consequently less active therapeutically and socially, than other wards in the hospital. They are, therefore, a group about whom less is known during the course of hospitalization, than is known of other patients.

In order to learn more about this group, 72 male patients at Spring Grove State Hospital, almost three-quarters of whom had been in the hospital from 5 to 45 years and all of whom were considered to require prolonged hospitalization, were studied. In obtaining information about the patients, the staff also learned something about the functioning of the hospital. Out of this study was born a new conception of the role of the mental hospital.

ORIGIN OF PROJECT IDEA

Early in the winter of 1952, members of the professional staff expressed concern about the many inadequacies of the poorly defined and organized hospital work program and proposed a study of a small group of patients employed in the hospital to obtain factual information.

The area selected for study was a Convalescent Cottage, the first unit to be occupied of 4 newly erected modern cottages, each planned to house about 50 patients. They were intended to serve as a convalescent service, a new concept in the hospital's existing architectural and administrative scheme.

Cottage I was opened in November 1952 with the transfer of male patients from the Continued Care Service, where many had for years lived in one of two old and overcrowded buildings. They were chosen for their ability to live on an open ward with a minimum of supervision and personal care.

¹ From the Spring Grove State Hospital, Baltimore 28, Md.

Those who first came to Cottage I then, while not truly convalescent, unless one might say "chronically convalescent," had been able to maintain at least a minimally independent existence within the hospital.

This cottage was chosen for 2 reasons: 1. more men than women might be expected to be engaged in hospital work assignments off the ward; and, 2, it was a group sufficiently small numerically and segregated geographically to separate for study.

CHANGE IN FOCUS

Before the study actually began the original idea was expanded to include ways of stimulating these patients to become more socially active and if possible as a result of this experience, to leave the hospital.

At the end of 2 years, by July 1, 1955, 26 of the 55 patients considered eligible to leave the hospital (as described later in this report) had done so: 18 in foster care, 9 by parole to their families or outright discharge, and one by elopement. Of the 26, only 3 were again in the hospital July 1, 1955. Not only had 52% of those considered able to leave actually moved into the community but 25 of the 26 were economically self-sufficient during their convalescent leave. Only one patient required tax-supported assistance, obtaining an old age assistance grant.

The immediate, practicable results, encouraging though they were, turned out to be less important than the long range effect of the ideas precipitated by the project—ideas that touched off basic changes in hospital thinking. The final report, therefore, is written to highlight the impact on the project group of this intimate, concentrated experience with chronic patients. Analysis of factors influencing patients' ability to leave and to remain out are left to a subsequent report.

STRUCTURE OF THE PROJECT

Spring Grove State Hospital is the third oldest state mental hospital in the United

States, with an average in-patient population of 2800, distributed at the time the project was undertaken in an Admission Building, a small proportion in the infirmary and other services, but the majority housed in 2 continued care services. The new, modern convalescent cottages and a treatment building for women patients had just been completed.

Staff was inadequate but no more so than usual in state hospitals. Because Spring Grove is close to psychiatric centers in Baltimore and Washington and because its superintendent and clinical director provided progressive, patient-oriented leadership, the hospital had become a training center for all related professions: nursing, psychology, social work and psychiatry. The staff consequently was more than usually treatment conscious. A foster care program, therapeutic rather than custodial, had been in operation since 1941. The social service department had already considerable experience with long hospitalized patients, but largely those who had some motivation to leave and had been individually referred.

STAFF

The staff engaged in the study consisted of a psychiatrist, chief of the men's continued care service, who initially administered the convalescent cottages, the nursing supervisor of the convalescent service, a vocational counsellor from the division of vocational rehabilitation, and a case work supervisor. The latter devoted half-time to this project and served as co-ordinator and recorder of its activities. The project began February 1, 1953 and continued to July 1, 1953, where all the staff participants, except the nurse, assumed responsibilities elsewhere; no service was, therefore, available to the patients after July 1 which was not already provided for in the convalescent service.

Cottage I designed for 50 patients, is a modern, spacious brick building with some double rooms and some small dormitories, with its own dining area, seating 4 at a table, and several rooms for recreational purposes. In size and comfort, it is in dramatic contrast to the buildings from which the patients came. Before the project officially began, the

psychiatrist transferred to other buildings those patients who were too deteriorated to participate actively in cottage activities. In their place came 4 patients from the admission building, 2 long hospitalized patients who were transferred as reward for faithful service, and 2 who had been admitted 7 and 11 months respectively before this transfer.

The project involved 72 patients, 49 of whom were continuously resident in Cottage I from February 1 to July 1, 1953. Thirteen were transferred to Cottage I between February and July, 6 from the continued care service and 7 from the admission service. Five of these 7 were admitted after January 1, 1953 and had, therefore, a different relation to hospital residence than the rest of the group. They were, however, expected to require prolonged hospitalization. Eleven left the Cottage during these 5 months, 7 to live in the community and 4 transferred to other buildings.

METHOD

The methods developed from actual experience and not without fumbling. To provide for interchange of ideas and a truly collaborative effort, the staff members met weekly during the first month, and thereafter irregularly. However, there were frequent conferences between the social worker and other members of the team.

Weekly group meetings were held with the patients to give them an opportunity to discuss their own ideas about living in the new building and to raise whatever problems they wished. The meetings, held from February 3 through May 26, were voluntary with an average attendance of 20 to 25. They were conducted by the psychiatrist, with the social worker serving as participant observer.

Beginning in March, weekly staff meetings were held to interview individual patients, usually 3 at each meeting. All members of the team participated in these conferences at which time the history was reviewed, the patient interviewed and the thinking of the various disciplines pooled to plan for further diagnostic or treatment measures. In addition, patients had planned individual contacts with the staff: 6 with the vocational counsellor, 5 with the doctor, 23 with social

workers and 8 with psychologists for testing.

The social worker recorded the staff planning meetings, the patient group meetings and, from all sources, filled out a card on each patient containing face sheet data, activities in the hospital, staff recommendations, etc. to be used for statistical reference. The psychiatrist dictated a summary of the staff conference for the patient's chart.

FACE SHEET INFORMATION

Ages ranged from 18 to 81 but this was predominantly an older group (47% over 50); hospital residence ranged from a few months to 45 years (71% more than 5 years, 53% more than 10 years and 20% more than 20 years.)

DIAGNOSIS

Fifty-eight per cent (42 patients) were schizophrenic, 17% (12) mentally defective (not psychotic), 15% (11) chronic brain syndromes (lues, Parkinsonism, arteriosclerosis, etc.) and about 10% (7) manic-depressive, involutional and reactive depressions.

PATIENTS' EXPERIENCE AND ADJUSTMENT IN THE HOSPITAL

When the staff inquired about the patients' experience in the hospital, little reliable or consistently recorded information was available. Nursing notes were meager; and the charts often contained only fragmentary data. Certain facts like hospital employment, other information, and paroles rarely appeared. From a cursory check, so few charts had recent progress notes that a survey was made of all the charts to note the date of the last progress note prior to February 1, 1953 (see Table 2).

The interval between progress notes, prior to the last, was also likely to have been long (5 to 11 years). The material recorded in one chart states in full: 1/15/35—"Works as one of the night men in the boiler house. Takes little interest in surroundings. Patient does not disturb his environment." 2/14/42 "Hands well." In another chart appeared: 3/12/42—"Foot better." 1/23/48 "Blood Wassermann positive." In still an-

TABLE 1

AGE AND LENGTH OF HOSPITALIZATION AS OF 7/1/53

Age	Total	Length of hospitalization			
		Less than 2 yrs.	2-5 yrs.	5-10 yrs.	10 yrs. and over
18-29 yrs. . . .	5	4	1	0	0
30-39 yrs. . . .	10	3	1	2	4
40-49 yrs. . . .	23	3	3	5	12
50-59 yrs. . . .	10	0	2	3	5
60-79 yrs. . . .	7	1	1	0	5
79+	17	1	1	3	12
Total	72	12	9	13	38

other: 3/2/49 "Infection around nail." 1/12/53 "Abscess of molar with general anesthetic."

As an additional check on the use of the patient's chart, a survey was made of the last occasion prior to February 1, 1953 that the chart had been signed out of the record room. (Records are filed centrally. Three years previous to the project a system of signing them out had been initiated).

The charts of 26 patients (36%) had not been taken out of the record room in 3 years.

TREATMENT

Treatment was defined as specific "psychiatric" therapy: shock treatment of various kinds, anti-luetic therapy, occupational therapy, and individual or group psychotherapy. Medical and surgical treatment for physical ailments not directly related to the psychiatric condition was not included. The data were secured from the charts. Hopefully, other treatment was given but not recorded.

From the time of their admission to February 1, 1953, 23 patients had had one or more of the specific psychiatric therapies, as defined above. Fourteen had had a course of electroshock therapy, 4 anti-luetic, 13 indi-

TABLE 2

Length of hospitalization	Total	Last progress note made within			
		1 yr.	1-2 yrs.	2-5 yrs.	Over 5 yrs.
	68*	16	15	27	10
Less than 1 yr.	2	2	0	0	0
1-2 yrs.	6	4	2	0	0
2-5 yrs.	9	4	3	2	0
5-10 yrs.	13	3	2	8	0
10+	38	3	8	17	10

* 4 patients admitted after February 1953.

TABLE 3

Length of residence	Total	No. of patients treated within 5 yrs.	Per cent treated
	72	15	66
Less than 2 yrs....	12	10	83
2-5 yrs.	9	4	44
5 yrs. or more	51	1	2

vidual or group psychotherapy and 10 occupational therapy. Only 2 patients hospitalized over 5 years had received either occupational or group psychotherapy.

If the time during which treatment was given is limited to the 5 years immediately preceding February 1, 1953, only 15 patients (21%) had had psychiatric treatment. The length of residence in the hospital of these patients is interesting: (See Table 3).

Contact with Families.—Patients hospitalized longer than the staff expected had retained contact with their families. Regular contact with some family member, even if infrequent, was considered as retaining contact. Eight patients had no known relatives. Of the remaining 64, 22 no longer had contact (see Table 4).

However, the quality of that contact—retention of the family as a resource when hospitalization ends—seemed to undergo a change with the passage of time, the family gradually excluding the patient as a family member even while continuing interest in him. (This is expressed in the way the patients did leave. Of the 19 patients retaining contact with their families who left by July 1955, 6 of 7 hospitalized less than 5 years returned to their families while only 3 of 12 hospitalized more than 5 years did so.)

Hospital Employment and Privileges.—Only little more than one-half of these "open ward" patients prior to February 1953 worked off the ward. (Eleven of these 37 received pay from the hospital ranging from \$2 to \$25 a month.) Twenty patients worked exclusively on the ward. Fifteen did no work.

TABLE 4

Length of residence	Total	Retaining contact	Percentage
	64	42	63
Less than 5 yrs. ..	19	17	89
More than 5 yrs. ..	45	25	56

Some of the patients on the hospital payroll had responsible jobs: one as supervisor of the hospital print shop, another as relief switchboard operator, etc. Three patients were working 12 hours, 7 nights a week at the power house. Others had been operating for years in jobs well below their present potential.

All 72 patients transferred to Cottage I were presumed well enough to handle ground privileges and the doors were left unlocked. However, 8 never left the ward, 27 remained on the hospital grounds (24 of these had never asked for greater freedom) and 37 occasionally or frequently made trips into nearby towns.

Previous Residence in the Community.—Five patients had been placed in foster care and 4 paroled to their families at some time prior to 1953. They had remained out from 10 to 228 days. Nine others had previously been referred to social service for help in making plans to leave but all declined the opportunity to return to the community.

Ward Adjustment.—The patients had been selected for the cottage because they were considered able to live with others with only minimal supervision. Although their behavior varied from seclusiveness, with considerable psychotic preoccupation, to a fair degree of social integration, the general attitude was of human beings living quite separately from one another. Watching TV was the major leisure-time activity. About 12 went to the hospital movies and dances. About the same number regularly read newspapers and magazines but few books. Gardening occupied 4 and a few played ping-pong or worked on jig-saw puzzles.

Ability to Live Outside the Hospital.—Although many patients functioned in routine fashion, often below their actual capacity and with little stimulus for change provided, many were making a marginal or better adjustment to the social demands within the hospital, social demands at least resembling the expectation of the outside world. But for few did this ability seem to create any wish to leave. Up to this point, the staff had used the usual criteria for parole planning: the patient's capacity to function adequately within the hospital in terms of the

resources outside in family or community for his care, and the degree of the patient's motivation to leave.

These criteria resulted in all too familiar half-answers as reasons against parole for many of the 72 patients. For instance, the staff found themselves saying, "These men are too afraid to leave," or "No one would give him a job," or "That patient's sister does not want him to leave." The "essential" seemed to the group to lie in the "definition" of the hospital itself as a treatment and/or protective service for the mentally ill.

The facts so far indicated that treatment, in any active sense at least, had seemed to diminish drastically with the years in the hospital. As a matter of fact, the longer the patient was in the hospital, the less likely was the staff to know much about him. The pattern bears a suggestive correlation to the parole probability figures of the National Institute of Mental Health.²

The staff, then, shifted the criteria of parole readiness from the *patient's* resources to the *appropriateness* of hospitalization as a service and reformulated the questions. Is the patient dangerous to himself or others? Is he likely to benefit either from the treatment available in the hospital or from the protection it affords? If not, then he should not be in the hospital.

With these new criteria, the psychiatrist, nurse and social worker without consultation with each other each compiled a list of patients able to live outside. The social worker listed 50 patients who could leave, the doctor 55 and the nurse 60. When the lists were compared, there was agreement regarding about 47 patients. Each had a few patients also on another's list; each had a few on no other list. (Interestingly, no patient had left the hospital 2 years later who was not originally on all 3 lists.)

The staff group agreed, after discussion, on 55 patients able, on the basis of this new formula, to leave the hospital. It was not assumed, of course, that these patients could return to the community without consider-

able help from their families or through foster care program. Nor was it assumed that any appreciable number, at this late date in their lives, would choose to make the attempt, even with help. The implications of this review were, however, startling. Fifty-five of 72 patients, or 76%, no longer required hospitalization. How much more could existing hospital facilities achieve for the 24% still requiring hospitalization if time and energy were not expended on the other 76%.

OUTCOME OF PROJECT

Of the 55 patients considered able to leave, only 7 were immediately interested and left the hospital by July 1, 1953. Eleven demurred but thought they might be willing to leave later. (By July 1955, 10 had left and the last was well on the way.) But 37 out of 55 (66%) rejected the idea. They were too frightened to talk about it or they said, "I have too much to lose. I can't expect to have it so good outside." Or "Why didn't you ask me 10 years ago?" (By July 1955, 9 did, after all, leave—5 died. None of the 5 admitted after 1/1/53 left.)

As the project progressed there was noticeable improvement in about 70% of the patients with greater sociability and more relaxed and pleasant contacts with personnel. Those patients working 7 nights weekly were given 2 days off each week and improvement in their ward adjustment was noted.

Much was left undone. The fact that the project was time-limited rather than a continuing service has itself certain serious implications. If, as it seemed to the staff, the major gain was the fact that 72 patients became individualized, many for the first time in years (with the possibilities this created for thoughtful planning, stimulation—and hope—for patients and staff), the gain itself is a sad commentary on how much is lost on countless chronic wards where such attention is not available.

Within the limitations imposed on the majority of state hospitals, what might be done to prevent this waste in human life and productivity?

² Facts and figures about mental illness and other personality disturbances. Bethesda, Md.: Natl. Inst. of Mental Health, April 1952.

WHAT MAKES PATIENTS "CHRONIC?"

In spite of the fact that the number of patients in this study is small, the information obtained cursory and the methods of intervention used pathetically meager, nevertheless, the thoughts provoked by the experience may have some validity for others concerned with long hospitalized patients and have at least been suggestive to the hospital in which the study occurred.

Tentatively, chronicity might be described as an impaired but relatively stable level of adjustment existing over an extended period and involving, finally, an unwillingness or inertia about effecting any change. Mental illness may be chronic without necessitating hospitalization at all or remain chronic following hospitalization, impairing as it so often does the individual's ability to get along with others.

Mental illness may be chronic at a much lower level of adjustment than was true of the patients in Cottage I. But even with residual symptoms, prior experience in the foster care program at Spring Grove indicates many such patients can maintain a satisfying life outside the hospital walls.

Precisely because many of the patients in Cottage I were able to function in relation to job, social activity and living with others, although sometimes in a minimal fashion, the question arises as to whether this is chronicity in a medical or, primarily, in a social sense, having less to do with the course of the illness and more to do with the way these men lived together, for a considerable time, in a particular kind of community—the mental hospital.

Facts about progress notes, psychiatric treatment and contact with family for these 72 patients do suggest that after 2 years, hospital activity in connection with the patient's recovery begins to ebb and a substantial difference is apparent after 5 years.

Timing is undoubtedly an important factor in the delicate balance between the patient's and family's satisfaction and dissatisfaction with living in Spring Grove as an accepted and, finally, an essential way of life.

Satisfaction with life in the hospital, especially when it compares favorably to what

may be available outside, is a necessary ingredient. New buildings, active recreation programs, etc., may even deepen this pattern for many without sufficient staff or a community-pointed convalescent program.

The loss of identity as an individual plays a large part in furthering chronicity. Limited staff, over-crowded buildings, the inaccessibility of records, as well as the patients' own desire to remain unnoticed promote a protective kind of anonymity. Even for those patients who call themselves to the staff's attention as "nuisances," "amusing characters" or "helpful souls," personal identity is lost in the stock roles they play.

The staff's own expectation is probably one of the most telling factors in this whole problem, an expectation absorbed into patient mores and circulated back to the staff. Spring Grove, as well as other state hospitals, seems to be in a transition between 2 hospital "cultures:" the old concept of asylum with its function of protective custody, and the new concept of temporary care during a specific treatment program. One culture is emerging from but has not yet displaced the other.

The patients described in this project span these 2 philosophies. Many began their hospitalization during the "asylum" period. They were cared for, even if the quality of care was sometimes deplorable. Conformity to hospital mores resulted, after a period of years, in stagnation—witness the progress note, "Patient does not disturb his environment," which was not followed by a referral to social service for help in leaving. Today, more than likely, such referral would result. Patients, faced by this inexplicable change in hospital attitude, express themselves resentfully, "I've worked for the hospital for 20 years; now they want to get rid of me." Or, as one patient, disturbed by the suggestion he leave, rushed to the superintendent to complain, "I was born and raised in Main Building [an old chronic service] don't let them take me away!"

For many years the hospital will have residu-als from this generation of "chronics." Slowly, ways may be found to help some of these "frozen" ones to leave but, more im-

portant, ways may be found, need to be found, to avoid creating future generations of such patients.

SUMMARY

For five months a staff group of psychiatrist, social worker, nurse and vocational counsellor worked closely with a group of 72 male patients, about 75% of whom had been hospitalized more than 5 years but who were currently able to maintain, with little supervision, a minimal social level of adjustment at least. The patients had recently been transferred from old buildings to a modern convalescent cottage. Twenty-six patients, who might otherwise have stayed indefinitely, did leave but 29 others—or a total of 55 patients of the 72—actually were no longer receiving any active benefit from hospitalization. A differentiation seemed pertinent

between chronicity of the illness itself and social chronicity in which the individual becomes adapted to a routine level of social functioning below his actual capacity. The culture of the state hospital seems to invite chronicity in the latter sense.

The study indicates some of the threads in this pattern—often implicit rather than explicit. Chief among them is perhaps the old conception of the state hospital's function to give shelter indefinitely to those for whom no obviously better plan is available in the community and who are not motivated to try.

The study suggests a concept of hospitalization limited to the continuing appropriateness of that service in terms of treatment and/or protection and some of the administrative means by which the social adjustment of the patient might then be stimulated to keep pace with the expectation of future plans to live outside.

EFFECTIVE UTILIZATION OF ELECTRIC CONVULSIVE TREATMENT

PETER F. REGAN, M. D.¹

Some of the problems involved in the correct timing of the use of insulin and electric convulsive treatments have recently been clarified by Hill(3). Greaves, *et al*(2) have demonstrated the specific psychopathologic situations in schizophrenic reactions in which insulin treatment works most effectively. It is the purpose of this report to delimit the psychopathologic situations in which electrically induced convulsions may be expected to produce satisfactory or unsatisfactory results. When these results are joined with those of current investigations of the effectiveness of chlorpromazine and other pharmacologic treatments, it is hoped that the varied physical treatment tools available to the psychiatrist may be used in efficient, complementary fashion.

CASE MATERIAL AND METHODS

This report is an analysis of 200 unselected cases that received electric convulsive treatment (ECT) at the Payne Whitney Psychiatric Clinic. For the past 10 years, ECT has been used as a symptomatic adjunct to psychotherapeutic treatment. For the most part, it has been administered to relieve depressions or to control excitements. In such instances, ECT was introduced after a psychotherapeutic relationship had been established, when the symptoms interfered with further psychotherapeutic progress; the timing of ECT administration was, therefore, usually similar to that described by Hill(3). In some instances, severe excitements forced the use of ECT at an early stage in treatment, or ECT was used as a last resort in chronic illnesses.

When used in depressions, ECT was administered twice a week, and when used in excitements, it was administered daily for a series of 2 to 5 treatments. Atropine sul-

phate 0.6 milligrams was administered one hour before treatment. On a few occasions, curare or tubocurarine was used with ECT; this study does not include patients treated with succinylcholine. The convulsion was produced with the use of 60-cycle alternating current delivered through bitemporal electrodes by standard Medcraft ECT machines (Models B2 and B24). The voltage ranged from 100 to 160 volts, and the current was applied for 0.1 second to 0.6 second. The figures in this report refer to treatments administered; occasional missed convulsions are counted as treatments.

In the analysis of case material which follows, most terms are self-explanatory. The term "psychopathologic condition" refers to the characteristics of the patient's emotional, intellectual, and behavioral state at the time ECT was administered. The psychopathologic condition is determined in accordance with the principles outlined by Diethelm(1) which involve a synthesis of the observable personal and social functioning with a thorough knowledge of the conscious and unconscious dynamic significance of the functioning for the individual.

Degree of improvement has been determined by the application of the following criteria: a patient was considered unchanged if illness was not improved in any observable fashion; mild improvement indicates that symptoms decreased to the extent that he could live with slightly increased comfort in a hospital setting; moderate improvement indicates that a patient was still partially incapacitated by symptoms; marked improvement indicates that the patient achieved freedom from symptoms. Improvement rates have been determined for the patient's condition at termination of the first or the only course of ECT, and at discharge. For all determinations, the author has relied on personal contact, examination of clinical records, and the personal evaluation of the clinic's psychiatrist-in-chief.

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RESULTS

Identifying Characteristics.—The sex distribution of the 200 patients (131 female, 69 male) was in accordance with over-all hospital distribution. As is commonly the case in voluntary hospitals, protective environments had delayed hospitalization of many women, and more of them had chronic illnesses; this factor must be considered in evaluating the finding that the men had a better improvement rate than the women (Table 1) at the time of termination of ECT (92.8% vs. 82.5%) and at discharge (85.5% vs. 62.5%). An acute onset is associated with better outcome than is gradual onset at termination of ECT (94.8% vs. 80.7%) and at discharge (82.9% vs. 67.3%). Similarly, illnesses of less than one year's duration have a better improvement rate at termination of ECT (92.5% vs. 76.1%) and at discharge (79.5% vs. 61.1%).

With 100 patients under 40 and 100 patients between 41 and 79 years of age, it is clear that the older group improves more than the younger at termination of ECT (92% vs. 80%) and at discharge (82% vs. 65%). The great majority of the younger patients, however, were those with schizophrenic reactions, many gradual in onset and chronic in nature; it seems doubtful, there-

fore, that age in itself has such a significant effect.

Treatment Characteristics.—Most patients remained in treatment in the hospital from 3 to 9 months (Table 2). The duration of hospitalization was not reflected in the effectiveness of ECT, all lengths of stay being associated with similar improvement rates at the termination of ECT; those patients who needed to remain longer than 6 months, however, had a poorer outcome at time of discharge.

ECT was administered to 102 patients with 3 months, to 68 with 3 to 6 months, and to 30 with more than 6 months of hospitalization. One hundred sixty-eight patients received one course of ECT, 28 received 2 courses, 2 received 3 courses, and 2 received 4 courses. The total number of treatments administered to a single patient ranged from 1 to 37 (Table 2), most patients receiving 5 to 12 ECT. No significant differences may be observed in improvement at termination of ECT except for those patients who received less than 5 treatments. On the other hand, those who required only 5 to 8 ECT had a better improvement rate at discharge

TABLE 1

FACTORS IN IMPROVEMENT
1. Identifying characteristics

Character- istics	Number of patients	Patients improved at termination of ECT	Patients improved at discharge
Sex			
Female	131	108 (82.5%)	88 (62.5%)
Male	69	64 (92.8%)	59 (85.5%)
Age			
10-29 years	66	50 (75.7%)	43 (65.1%)
30-39 years	34	30 (88.2%)	22 (64.7%)
40-79 years	100	92 (92.0%)	82 (82.0%)
Onset			
Acute	76	72 (94.8%)	63 (82.9%)
Gradual	124	100 (80.7%)	84 (67.3%)
Duration of illness			
Less than 1 year. 133	121 (92.5%)	106 (79.5%)	
More than 1 year. 67	51 (76.1%)	41 (61.1%)	
Total	200	172 (86%)	147 (73.5%)

TABLE 2

FACTORS IN IMPROVEMENT
2. Treatment characteristics

Character- istics	Number of patients	Patients improved at termination of ECT	Patients improved at discharge
Duration of admission (days)			
1-89	23	21 (91.3%)	20 (86.9%)
90-179	77	67 (87.0%)	60 (77.9%)
180-269	55	44 (80.0%)	38 (69.0%)
270-360	20	18 (90.0%)	14 (70.0%)
More than 360..	25	22 (88.0%)	15 (60.0%)
Number of ECT			
1-4	22	12 (54.5%)	13 (59.0%)
5-8	74	66 (89.0%)	62 (83.7%)
9-12	47	43 (91.4%)	35 (74.4%)
13-16	25	23 (92.0%)	18 (72.0%)
16-37	32	28 (82.5%)	19 (59.3%)
Weight change with ECT			
Weight gain ...	119	110 (92.4%)	97 (81.5%)
Weight loss	26	22 (84.6%)	19 (73.0%)
No change	9	5 (55.6%)	5 (55.6%)
Not known	46	—	—

(83.7%) than did those who required more ECT; those who required more than 16 ECT had a lower improvement rate at discharge (59.3%) than any other group with more than 4 treatments.

Subcoma insulin treatment was given in conjunction with ECT in 25 instances, 17 in patients with paranoid schizophrenic reactions; the improvement rates are not significantly different when results are compared. Weight change was studied in 154 patients (Table 2); an increase in weight during treatment was associated with greatest rate of improvement (92.4% at termination of ECT and 81.5% at discharge); decrease in weight was associated with poorer results (84.6% at termination of ECT and 73.0% at discharge); no change of weight was associated with the poorest percentage of improvement (55.6% at termination of ECT and at discharge) in the 9 patients in whom it was observed.

Diagnostic Categories.—ECT was administered to 62 patients with depressive reactions (7 of these occurred below age 40, and 5 were part of a manic-depressive reaction), 7 patients with manic excitements, 85 with schizophrenic reactions, 17 with paranoid reactions, 20 with psychoneurotic reactions with depression, and 9 patients with other conditions (such as confusional state, and epilepsy).

Marked deviations from the over-all effectiveness of ECT become apparent when the effect of treatment in these diagnostic categories is considered (Table 3). The improvement rates for the entire group are 86% at termination of treatment and 73.5% at discharge. Patients with affective disorders, paranoid reactions, and psychoneurotic reactions with depression, however, have improvement rates of 95.1%, 94.1%, and 90%, respectively, at termination of treatment; similarly they have improvement rates of 86.9%, 76.4%, and 85%, at discharge. In contrast, the patients with schizophrenic reactions show improvement rates of 80% at termination of treatment and 61.1% at discharge. Even with the group of schizophrenic patients, there is wide variation in accordance with diagnostic sub-categories,

TABLE 3
FACTORS IN IMPROVEMENT
3. Diagnostic characteristics

Character- istics	Number of patients	Patients improved at termination of ECT	Patients improved at discharge
Affective disorders			
Depressive reac- tions	62	59 (95.1%)	54 (87.0%)
Manic excite- ments	7	7 (100%)	6 (85.7%)
Schizophrenic reac- tions			
Paranoid	41	34 (82.9%)	24 (58.4%)
Catatonic excite- ment	16	13 (81.2%)	11 (68.7%)
Catatonic stupor.	5	5 (100%)	4 (80.0%)
Simple and hebe- phrenic	23	16 (69.5%)	13 (56.5%)
Paranoid reactions.	17	16 (94.1%)	13 (76.4%)
Psychoneurotic reac- tions with			
depression ..	20	18 (90.0%)	17 (85.0%)
Other	9	4 (44.4%)	5 (55.5%)
Total	200	172 (86%)	147 (73.5%)

and a lack of consistency between results at termination of treatment and at discharge.

Emotional Status.—When the emotional status of the patient is considered, a similar deviation from over-all improvement rates is apparent. A total of 111 patients in all diagnostic categories received ECT when the predominant emotional state was depression; these patients had improvement rates of 91.8% at termination of treatment, and 81.9% at discharge (Table 4). Further investigation revealed deviations from this pattern, depending on what other psychopathologic condition or emotion was most prominently associated with depression. For the 81 depressed patients whose most prominent secondary characteristic was paranoid features, anxiety, agitation, fear, or marked sexual disturbance, the improvement rates were 97.5% at termination of treatment and 91.3% at discharge. For the 30 patients whose most prominent secondary characteristic was hostility (including aversion and negativism), guilt, or body overconcern, the improvement rates were 76.6% at termination of treatment and 56.6% at discharge.

TABLE 4

FACTORS IN IMPROVEMENT

4. Psychopathological condition—depression

Condition Depression as- sociated with:	Number of patients	Patients improved at termination of ECT	Patients improved at discharge
Paranoid features . (A-21, PN-1, O-1)*	23	22(95.6%)	22(95.6%)
Anxiety or agita- tion	30	29(96.6%)	28(93.3%)
(A-19, PS-2, NPS-4, PR-2, PN-4, O-1)			
Fear	17	17(100%)	15(88.2%)
(A-11, NPS-1, PR-2, PN-3)			
Sexual content . .	11	11(100%)	9(81.8%)
(A-2, PS-4, PR-3, PN-2)			
Hostility	18	14(77.7%)	10(55.5%)
(A-6, PS-3, NPS-1, PR-3, PN-5)			
Guilt	8	7(87.5%)	5(62.5%)
(A-3, PS-1, PN-4)			
Body concern . . .	4	2(50%)	2(50%)
(A-2, PS-1, NPS-1)			
Totals	111	102(91.8%)	91(81.9%)

* A—Affective reactions; NPS—Non-Paranoid schizo-
phrenic; O—Other; PN—Psychoneurotic reaction; PR—
Paranoid reaction; PS—Paranoid schizophrenic reaction.

In the remaining 89 patients, whose pre-
dominant emotional state was not depression,
the improvement rates were 78.6% at termi-
nation of treatment, and 62.9% at discharge.
In 61 of these patients, certain psychopatho-
logic conditions were predominant (Table
5), of which, only fear and marked sexual
disturbance appear to afford better improve-
ment, with respective rates of 92.3% and
80% at termination of treatment, and 69.2%
and 73.3% at discharge. Hostility would
seem to indicate a good initial response to
ECT, with a rate of 84.6% at termination of
treatment, but a poor eventual result, with a
rate of 53.8% at discharge. With anxiety
and fixed conditions with little affect, results
seem poor.

*Interaction of Diagnostic Category and
Psychopathologic Condition.*—The signifi-

TABLE 5

FACTORS IN IMPROVEMENT

4. Psychopathologic condition other than depression

Condition	Number of patients	Patients improved at termination of ECT	Patients improved at discharge
Sexual content . . . (PS-6, NPS-1, CE-8)*	15	12(80%)	11(73.3%)
Hostility	13	11(84.6%)	7(53.8%)
(PS-10, NPS-2, CS-1)			
Fear	13	12(92.3%)	9(69.2%)
(PS-8, NPS-1, CE-1, CS-1, PR-1, O-1)			
Anxiety	10	7(70%)	4(40%)
(PS-1, NPS-6, CE-1, CS-2)			
Fixed, with little affect	10	4(40%)	4(40%)
(PS-3, NPS-4, PR-2, O-1)			
Totals	61	46(75.4%)	35(57.3%)

* CE—Catatonic excitement; CS—Catatonic stupor; NPS
—Non-Paranoid schizophrenic; O—Other; PR—Paranoid
reaction; PS—Paranoid schizophrenic reaction.

cance of the psychopathologic condition on
the results within a diagnostic category may
be illustrated by the results with depressive
reactions (Table 6). For the 51 patients

TABLE 6

FACTORS IN IMPROVEMENT

5. Interaction of diagnostic category and psycho-
pathologic condition

Diagnosis and condition	Number of patients	Patients improved at termination of ECT	Patients improved at discharge
Affective reaction			
a. Depression with paranoid features, anx- iety, agitation, fear or sexual content	51	51(100%)	48(94.1%)
b. Depression with hostility, guilt, or body concern	11	8(72.7%)	6(54.5%)
Totals	62	59(95.1%)	54(87.0%)

whose depression was associated with paranoid features, anxiety, agitation, fear, or sexual content, the improvement rate at termination of ECT was 100%, and at discharge was 94.1%. In contrast, the 11 patients whose depression was associated with hostility, guilt, or body concern had improvement rates of only 72.7% at termination of treatment, and 54.5% at discharge. The latter 11 patients accounted for 5 and the former 51 patients accounted for 3, of the total of 8 patients who did not improve.

This significance may be further examined by studying the degree of improvement among the 51 patients whose depression was associated with paranoid features, anxiety, agitation, fear, or sexual content; 33 (64.7%) had achieved marked improvement at termination of treatment, and 35 (68.6%) at discharge. In contrast, among the 11 patients whose depression was associated with hostility, guilt, or body concerns, only 2 (18.1%) had achieved marked improvement at termination of treatment, and 3 (27.2%) had at discharge.

DISCUSSION

Increasing experience with the newer pharmacologic methods of treatment indicates that no one of these drugs is universally applicable. Like electric convulsive treatment and other physical methods, they operate most effectively within certain spheres of psychopathology. Moreover, they share with other physical treatments the quality of acting symptomatically. When they are viewed in the broad field of physical treatment in psychiatry, therefore, it would seem inadvisable to attempt to supplant one physical treatment with another, or to regard any treatment yet developed as being fundamentally curative. Instead, each physical method, old and new, should be studied most intensively, in order to determine the specific situations in which each will work most effectively, and the time at which it can most effectively be integrated into a psychotherapeutic regimen.

If specific situations in which the different physical treatments offer maximal help are to be delineated, it seems apparent that the use of diagnostic categories to describe illness is not enough; the fact is that all

schizophrenic reactions, or all depressions, are not identical. Instead, increasing attention must be paid to the dynamic psychopathologic state of the patient. It is well recognized that the same emotions, attitudes, and symptoms occur in different diagnostic categories. Thus, hysterical features may be found in psychoneuroses, schizophrenic, and affective reactions, as may anxiety, or depression. Extensive psychoanalytic investigations have revealed that such psychopathologic conditions have specific dynamic and therapeutic characteristics. Investigations have also revealed, however, that the major diagnoses have equally specific dynamic and therapeutic characteristics. The qualities of the psychopathologic condition, therefore, will be merged with those of the diagnostic category. The result of this mixture will determine the therapeutic availability, the prognosis, and the optimal treatment of the individual patient.

It was the purpose of this study to determine whether or not an investigation of this interaction would contribute to a more efficient utilization of ECT, and would indicate its place in the armamentarium of psychiatric treatment. The findings require substantiation and extension with larger groups of patients. At this point, they confirm the impression that ECT will be most effective in those illnesses whose predominant feature is depression, but indicate clearly that this effectiveness is modified by the diagnostic category and the associated psychopathologic findings. Thus, greater effectiveness is achieved in affective reactions, less in paranoid and psychoneurotic reactions, and least in schizophrenic reactions. A similar differential effectiveness obtains for psychopathologic conditions: depression associated with paranoid features, anxiety, fear, agitation, or sexual content will respond to ECT with far better results than will depression associated with hostility, guilt, or body concern. Maximal effectiveness is achieved when depression with the first group of associated conditions is found in a patient with an affective reaction.

If depression is not present, diagnostic category and psychopathologic condition still modify the results of ECT. Fear and sexual content augur good results, while anxiety or

fixed conditions make a poor result likely. Even within schizophrenic reactions, catatonic stupors and excitements associated with fear or sexual content will respond well. In each of these conditions, however, the difference between improvement rates at termination of ECT and at discharge is a striking indicator of the fact that ECT remains a symptomatic treatment, and that ultimate results depend on the total therapeutic situation.

When the differential effectiveness of ECT is compared with that of chlorpromazine, some therapeutic possibilities begin to appear. Chlorpromazine has proven most effective in relieving hostility, whether with or without depression; initial studies at this clinic indicate that it may be possible to use chlorpromazine to control hostility until psychotherapy has relieved its pressure, and that ECT may then be useful if indicated for treatment of depression. Similarly, the apparent effectiveness of meprobamate in relieving anxiety may prevent the need for using ECT in its presence. If we are to utilize some of these leads, however, it would seem imperative that there be further intensive studies of the differential effectiveness of each physical treatment.

SUMMARY

This study is concerned with the effectiveness of ECT as an adjunct to the psycho-

therapeutic treatment of 200 patients. It is found that effectiveness depends both on diagnostic entity and psychopathologic state. Thus, affective disorders responded best to ECT; paranoid reactions and psychoneurotic reactions with depression responded well; and schizophrenic reactions poorly. Influencing these results, however, was the fact that depression associated with agitation, anxiety, fear, or sexual content yielded better results, and depression associated with hostility, guilt, or body concern yielded poor results, in each diagnostic category. In the absence of depression, fear and sexual content yielded good results, and hostility, anxiety, and fixation yielded poor results. Optimal efficiency was obtained only when ECT was indicated by both diagnosis and psychopathologic state.

It seems essential that information about differential effectiveness be determined for each of the physical treatments available in psychiatry. Only thus will it be possible to achieve maximum effectiveness and complementary utilization of these treatments.

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SENSORY DEPRIVATION

A REVIEW

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It has long been known through autobiographical writings that explorers and shipwrecked individuals who undergo isolation for many days may suffer curious mental abnormalities. In recent years it has been found that prisoners-of-war exposed to "brainwashing" may experience similar fates. Since perceptual and sensory deprivation seem to be basically involved in each instance, a number of investigators have begun to approach the subject experimentally. This article is a critical review of some of the most pertinent autobiographical, "brainwashing," and experimental data.

AUTOBIOGRAPHICAL REPORTS OF ENVIRONMENTAL STRESS

Admiral Byrd(1) wanted "to taste peace . . . quiet and solitude long enough to find out how good they really are." He spent 6 months alone in the Antarctic. Dr. Alain Bombard(2), who wished to prove that shipwrecked people could survive at sea for an indefinite length of time, sailed alone across the Atlantic Ocean for 65 days on a life raft, subsisting solely on what food he could get from the sea. Both men, dedicated scientists, reacted to their isolation and loneliness in almost identical fashion. The lack of change in their environment caused a monotony which was oppressive, and they felt themselves drawing deeply into themselves for emotional sustenance.

Both explorers found that while their lives were threatened daily by the hazards of

their milieu, it was the constancy of their surroundings which seemed like a force which would destroy them. Both men felt that they could control themselves and their environment only by thoroughly organizing their days, assigning themselves to a strict routine of work, and spending no more than one hour at a time doing a task. In this way, each felt he proved to himself that he could control both himself and his environment.

After 3 months alone, Admiral Byrd found himself getting severely depressed. He felt a tremendous need for "stimuli from the outside world," and yearned for "sounds, smells, voices and touch." Bombard, too, "wanted terribly to have someone . . . who would confirm any impressions, or better still, argue about them . . . I began to feel that . . . I would be incapable of discerning between the false and the true." Both men used the same mechanisms to fight off depression: controlling their thoughts, dwelling only on pleasant past associations and experiences and refusing to allow themselves to think about the anxiety-producing aspects of their situations.

Hallucinations and delusions as well as depression and anxiety play a prominent part in the accounts of other individuals under severe stress and isolation. Christine Ritter in her very sensitive document, "A Woman in the Polar Night,"(3) reported that at various times she saw a monster, and heard ski strokes on the snow where no one was evident. Pseudo-hallucinatory experiences occurred in which the "imprisoned senses circled in the past, in scenes without spatial dimensions," and at one point during the long arctic night she experienced depersonalization to the extent that she thought she and her companions were "dissolving in moonlight as though it were eating us up. The light seemed to follow us everywhere," and "neither the walls of the hut nor the roof of snow can dispel my fancy that I am moonlight myself." The Spitzbergen hunters

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used the terms *rar* (strangeness) to describe these experiences. They are reported by many who spent the winter in polar regions.

In discussing the effects of being alone in the Arctic (she would be alone for periods up to 16 days) Mrs. Ritter makes the interesting observation that

the extraverts among those who spend the winter here will always intrinsically create for themselves a sphere of activity and hence a sphere of reality, which will save them when no impulse comes from without. Those who find their pleasures in meditation, will withdraw into themselves, into regions of astonishing brightness; but those who are accustomed to yield to their inclination to idleness run the great danger of losing themselves in nothingness, of surrendering their senses to all the insane fantasies of overstretched nerves.

In 1943 Jan Baalsrud(4), a Norwegian soldier saboteur, while fleeing from the Nazis, spent 27 days alone on a mountainous plateau where he had to be left by friends who had rescued him. Because of frostbitten feet, he was unable to move from his sleeping bag. For at least 20 of these days, he was buried by a blizzard, his only sustenance for most of the time being a teaspoonful of brandy daily. He saved the last spoonful as a symbol of his continuing hope for survival. Within the first 36 hours he thought he heard the sound of skis and he shouted to people he thought were present. He felt that his brain was clear. . . .

his mind was occupied with the minute details of physical existence; to keep moving, to be on the watch for frostbite, to stop the snowroof from falling down. . . . Each of these tasks became an absorbing activity . . . and each an important part of his conscious effort not to die. When any of the tasks were accomplished, he felt he had warded off death for a few minutes. He sometimes visualized death as a physical being who prowled about him. He parried the lunges (of) this creature . . . and he was proud . . . when he thrust off . . . its attacks.

Tales of the sea have provided many accounts of hallucinatory phenomena. Capt. John Slocum(5) sailed alone around the world. During a gale in the South Atlantic he reefed his sails rather than take them down. Restricted to his cabin because of sickness he suddenly saw a man, who at first he thought to be a pirate, take over the tiller. This man refused to take down the sails on request from Slocum, but instead reassured

him that he was a pilot and would safely take his boat through the storm. The next day Slocum found his boat on true course 93 miles along. Later that night the pilot returned in a dream and reassured him that he would come whenever needed. For the remainder of the voyage during gales this apparition appeared to him several times.

Walter Gibson(6), a soldier in the British Indian Army, was on a ship torpedoed in the Indian Ocean by the Japanese in World War II. Of 135 survivors, there were only 4 alive one month later and he was the only Caucasian among them. Under the most extreme conditions of physical deprivation and partial social isolation Gibson reported that "all of us at various stages in that first week became a prey to hallucinations." Dreams which became prevalent at about the same time were "fierce and vivid dreams of food and drink and family gatherings." As the conditions became more extreme the feeling of comradeship disappeared and the men began to find themselves "watching our fellows covertly and suspiciously." Murder, suicide and cannibalism followed as social controls dissolved. Finally, some 4 weeks later after landing on an island, "the faces of person after person who had been on the boat appeared around me on the rocks and stones on the beach."

Gibson makes the important point that survival experiments on rats and lifeboats, when the men know that they are never in real danger, are not comparable to the situation when men are facing the unknown alone and without knowledge of the end. He thus emphasizes the inherent difficulties in comparing natural situations with experimental studies.

BRAINWASHING

Major-General William Dean(7) was as unwilling a subject for perceptual isolation as Byrd and Bombard and Ritter were enthusiastic volunteers; yet his experiences were in many ways similar to theirs. He was kept apart from all other United Nations' prisoners and although he was under constant observation by North Korean guards he felt completely alone. He had great difficulty in preserving his judgement. "You have no

one on whom to test your ideas . . . a thought which you would normally discard . . . balloons in your mind until you are sure it must be exceptionally clever."

A physical fitness enthusiast, General Dean did calisthenics—even when reduced to crossing and uncrossing his fingers because of orders forbidding him to exercise, and he did algebraic problems in his head (as did Bombard). These activities made the General feel that he was maintaining his intellectual and physical integrity. Nonetheless, at one point during his imprisonment, he became so depressed that he attempted suicide.

Thought control, or "brainwashing" (8), a phenomenon which has existed in civilization for centuries, has taken on a new and sinister meaning, as seen from the experiences of both political prisoners and prisoners of war who have been held in prisons operated by the Russian and Chinese Communist governments. Lifton (9), describing the Chinese method, believes that "milieu control" is the element added to thought reform techniques which makes the latter so effective. He says "The Chinese Communist prison is probably the most thoroughly controlled and manipulated group environment that has ever existed . . . milieu control eliminates any possibility of reality testing or consensual validation."

Schein (10) and Lifton (11) describe how environmental manipulation was begun as the POWs were transferred to camps run by the Chinese Communists. Officers and non-commissioned officers were sent to separate camps, depriving the enlisted men of leadership and discipline. The enlisted men were further segregated according to race and nationality. They were told that they were war criminals and that therefore their rank and the unit to which they belonged no longer had meaning. Any organizations established by the POWs to maintain discipline and to ferret out intelligence were broken up by informers. The men who showed qualities of leadership were sent to separate camps.

The receipt of mail from home was regulated so that the POW was allowed to receive only those letters which were pessimistic about the outcome of the Korean Conflict

or indicated a lack of interest in the POW or the conflict. Such letters depressed the men. They lost interest in mail from home and tended to lose identification with their families. The men were made so suspicious of one another that the buddy system which had enabled soldiers in Japanese and German POW camps in World War II to maintain morale, became ineffectual. Informers and Chinese spies were so numerous the men felt that the only way to protect themselves was to withdraw from all intimacy with other prisoners.

As a result of such efforts, the goal of the Chinese Communist indoctrination, to make the men into a "group of isolates," was partially achieved. "The most important effect of the social isolation . . . was the consequent emotional isolation which prevented a man from validating any of his beliefs, attitudes and values through meaningful interaction with other men." Each man was on his own life-raft.

Once social and emotional isolation was achieved, indoctrination was begun. The only sources of information available to the POWs in Korea and to civilian prisoners in Red China, were Communist publications, motion pictures and radio broadcasts. These had to be discussed and studied until the prisoner could prove that he understood and accepted them. Communist ideas were repeated again and again until the prisoner, fatigued and half-hypnotized, accepted them as the truth.

Even after being returned to the United States, civilians who had been prisoners in Chinese Communist prisons for 2 to 4 years sometimes repeated their false confessions. They insisted that they were guilty of "crimes against the people" and praised the "truth and righteousness" of Communist doctrine.

According to Lifton, the basic tenet of thought reform was that each prisoner was a "reactionary spy" who must die and be reborn "in the Communist image." For the first 1 to 3 months the prisoner was interrogated almost constantly, either by "judges" or by his 7 or 8 Chinese cell mates organized into a team of inquisitors, whose purpose was to "help" the prisoner make his confession. The environment was completely or-

ganized so that every act of the prisoner was made known to the authorities. Routine was so thoroughly prescribed that even the time for toilet needs was set.

After 2 or 3 months of such treatment, in addition to suffering from physical fatigue and illness, the prisoner was usually very confused, "unable to clearly demarcate the boundaries of truth and fiction." He was depressed "frequently to the point of being suicidal," and sometimes experienced psychotic symptoms, "such as auditory hallucinations."

Once the prisoner had "confessed," to being an enemy of the people, his reeducation began. He was forced to participate in study groups which lasted 10 to 16 hours a day, taking up almost all of his waking hours. Every question or problem "must be solved by the group by means of discussion," in which the prisoner must examine his shortcomings or errors in belief and judgement. For years, until his education had progressed to the desired point, the prisoner spent his life in a cell so small that when the inmates (the prisoner and the 7 or 8 Chinese who formed the confession team) wished to turn over while sleeping at night, they could do so only together at a given signal from the team leader. Little wonder that gradually the "external milieu replaced the internal milieu." The prisoner under such a system is in a situation very similar to that described by George Orwell in "Nineteen Eighty-Four" (12)."

Somewhat in contrast to Lifton and Schein, Hinkle and Wolff (13), in their survey of Communist interrogation and indoctrination methods, emphasize the importance of isolation as the major technique. They point out that

when the initial period of imprisonment is one of total isolation . . . the complete separation of the prisoner from the companionship and support of others, his utter loneliness, and his prolonged uncertainty have a further disorganizing effect upon him. Fatigue, sleep loss, pain, cold, hunger, and the like, augment the injury induced by isolation. . . . With the passage of time, the prisoner usually develops the intense need to be relieved of the pressures put upon him and to have some human companionship. He may have a very strong urge to talk to any human and be utterly dependent on anyone who will help him or befriend him. At about this time he also becomes mentally dull and loses his

capacity for discrimination. He becomes malleable and suggestible and in some instances he may confabulate.

Stypulkowski (14), in his autobiographical account of interrogation for several months by the Russians in Lubianka Prison, Moscow, graphically reiterates Hinkle and Wolff's findings.

In addition to milieu control in "brainwashing," the role of Pavlovian reflex psychology has been discussed by Meerloo (15) and the relationship to drive reduction mechanisms has been emphasized by Winokur (16) and by Santucci and Winokur (17).

The presence of a common denominator of *imposed control of external stimuli*, whether it be the reduction of news from the outside world or enforced solitary confinement, appears to be a factor of primary significance. Christopher Burney (18) expressed succinctly the effects of such control. He was an English army officer engaged in espionage in Occupied France during World War II and he was kept in solitary confinement by his German captors for 18 months. He said, "I feel a sense of impotence, an inexorable subjection to a machine of nameless horror." He added "Variety—is the very stuff of life. We need the constant ebb and flow of wavelets of sensations, thought, perception, action and emotion—keeping even our isolation in the ocean of reality, so that we neither encroach nor are encroached upon."

EXPERIMENTAL STUDIES

Walter (19) feels that the nervous system requires constant extrinsic sensory input to function normally and efficiently. While studying neural mechanisms and behavior in situations involving alterations of perceptual stimuli, Lilly (20) proposed the question: "Freed of normal efferent and afferent activities, does the brain soon become that of coma or sleep, or is there some inherent mechanism which keeps it going, a pacemaker of the awake type of activity?" Lilly approached the problem by experimentally reducing the *absolute intensity* of physical stimuli received by a human subject. This was accomplished by suspending a subject, wearing only a blacked-out head mask for

breathing, in a tank of water maintained at 34.5 degrees centigrade. With this technique, visual, auditory and tactile stimuli were reduced to a minimum. A variety of results occurred, some involving highly personalized fantasy material and projection of visual imagery.

Experiments carried out in Hebb's laboratory by Bexton, Heron and Scott(21) attempted the *reduction of patterning* of stimuli to low absolute levels. Healthy college students were placed on a comfortable bed in an airconditioned soundproof cubicle. The subjects' arms and hands were enclosed in cardboard cuffs to minimize tactile stimuli and their eyes were covered with translucent glasses which permitted entry of light but abolished all pattern and form vision. Observation of these subjects revealed the following: after several hours, directed and organized thinking became progressively more difficult; suggestibility was greatly increased; the need for extrinsic sensory stimuli and bodily motion became intense; most subjects found they could not tolerate the experiment for more than 72 hours; subjects who remained longer than 72 hours usually developed overt hallucinations and delusions. In description these were similar to those reported with mescaline and LSD.

Thus by reduction of patterning of stimuli it was noted that a series of mental abnormalities could be produced experimentally and that in many instances the severity and progression of symptoms could be related to the length of time of the sensory deprivation.

Heron, Doane, and Scott(22) subjected themselves and 5 other subjects to similar experimental conditions for a period of 6 days. All subjects had visual disturbances for 12 to 24 hours after being removed from the experimental situation, as follows: there were fluctuations, drifting, and swirling of objects and surfaces in the visual field; change of position of object occurred with change in eye or head movement; shapes, lines and edges appeared to be distorted; visual after-images were accentuated; colors were very bright and there was exaggeration of contrast phenomena.

Electroencephalograms taken during the period of sensory deprivation revealed slower

frequencies in the alpha range and marked delta wave activity. The records were still abnormal 3½ hours after the subjects were removed from isolation.

Experimental deafness has been reported by Ramsdell (in Hebb)(23) and by Hebb, Heath, and Stuart(24). In these cases cotton wool with petrolatum was placed in the ears of subjects for 3 days. Their chief findings, with marked individual differences, were: inability to speak with normal volume; increased and decreased motivation for studying; marked irritability; exaggerated response to stimuli; desire either to withdraw from situations or to charge into them; feelings of personal inadequacy. There was no evidence of fantasy behavior, though one subject reported that she spoke to a group and no one seemed to hear her.

The reduction of patterning of stimuli has been employed by investigators studying the effects of isolation in the therapy of mental illness(25). These studies, however, are of limited value because of the many variables associated with selection, diagnosis and evaluation of mentally ill patients in an experimental procedure.

The most recent reports of the effects of sensory deprivation involve clinical observations made on a group of 9 patients with poliomyelitis who required treatment in a tank-type respirator(26). In these cases, the mental abnormality began after the patient had been in the tank for 24-48 hours or longer, and was characterized by well-organized visual and auditory hallucinations and delusions to which the patient reacted in different ways and to different degrees. Most of the patients referred to these experiences as dreams. They could recall them in detail even many weeks later. Although many illnesses which affect the nervous system, and indeed many without direct nervous system involvement, are capable of producing abnormality of mental function, they are usually associated with some evidence of a febrile, anoxic, toxic or metabolic derangement. As far as could be determined, there were no such factors in these patients.

The hypothesis formulated was that the abnormality of mental function was related to perceptual isolation or restriction imposed by the unique conditions of life in a tank-

type respirator. The significant findings were:

1. Well-organized delusions and hallucinations occurred only in poliomyelitis patients treated in the tank-type respirator.

2. They required 2-7 days to develop in overt form.

3. The condition lasted 10-15 days and recovery was independent of recovery of motor function or of continued existence in the respirator.

4. In all instances fever was absent, no drugs were being given, and no metabolic aberrations could be demonstrated.

5. Disorientation was the common substrate. The content of the experiences could be pleasant or horrendous, but only rarely was there psychomotor agitation as seen in toxic-infective delirium. In all patients the symptoms were worse at night, and better during the periods for feeding, physiotherapy, and visiting.

6. The patients were able to recall their experiences with great vividness and detail even many weeks after the symptoms ceased. Most of the patients were unable to recall the events of their more lucid intervals in the respirator.

To understand this disorder, it is necessary to consider the unique situation presented by life in a tank-type respirator: vision is restricted to a limited area; the patient never sees any part of his own body; the dominant auditory stimulus in a respirator ward is the rhythmic machine-like sound of the tank motor and the bellows; the patient lies constantly in the same position, and even if not paralyzed, moves his limbs very little.

Thus the patient is restricted in terms of visual, auditory and kinesthetic sensation, and suffers a corresponding degree of perceptual deprivation. This deprivation was different from Lilly's *reduction of the absolute level of stimuli* and Hebb's *reduction of the patterning of stimuli*, though essential elements of both were present. It could be termed an *imposed structuring of stimuli*, for the stimuli the patients received were both unvarying and repetitive, yet were not reduced in absolute level of intensity. Also, form and pattern discriminations were not abolished. This imposed structuring of

stimuli has characteristics analogous to the structuring of the external milieu noted in "brainwashing" techniques, described above.

Recent experiments using human volunteers in a tank-type respirator in our laboratory (27) have added further evidence in confirmation of the effects of perceptual deprivation under these conditions.

At the present time both experimental studies and clinical observations on sensory deprivation need further and more careful investigation. Many factors require additional evaluation and many variables in experimental design and technique must be controlled. Attempts to repeat certain phases of experimental procedure have shown that perhaps even small variations can yield diametrically opposite results. The changes in experimental design utilized by Vernon and Hoffman (28) in attempting to repeat the McGill group's observations illustrate this. These investigators were not able to elicit the findings reported from Hebb's laboratory, as described above, but they admitted they had not employed exactly similar methods. It remains to be determined what items in the experimental situations are the key elements.

In the area of experimental investigation of sensory deprivation, more carefully refined data are necessary before any basic hypothesis can be supported or rejected. Future investigations should attempt to contribute data of both quantitative and qualitative adequacy.

SUMMARY

Sensory deprivation has been produced experimentally by reducing the absolute intensity of stimuli, by reducing the patterning of stimuli, and by imposing a structuring of stimuli. Explorers have experienced it voluntarily and prisoners have had it thrust upon them.

While there are many separate factors operating in these various situations, it is clear that the stability of man's mental state is dependent on adequate perceptual contact with the outside world. Observations have shown the following common features in cases of sensory deprivation: intense desire for extrinsic sensory stimuli and bodily

motion, increased suggestibility, impairment of organized thinking, oppression and depression, and, in extreme cases, hallucinations, delusions, and confusion.

Though the basic concepts regarding perceptual and sensory deprivation are not new, their recent importance in experimental and real life situations has made them increasingly interesting. Future studies in this area may well contribute to our knowledge of the psychological and behavioral patterns of man under conditions of normality and stress.

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CLINICAL NOTES

A COMPARISON OF PHENAGLYCODOL (ULTRAN), MEPROBAMATE AND A PLACEBO IN ABSTINENT ALCOHOLICS¹

JACKSON A. SMITH, M.D.,² AVONELL RUTHERFORD, R.N.,³ AND RITA FANNING, R.N.⁴

The major problem in the treatment of the alcoholic is not the immediate relief of the discomfort following an alcoholic bout, but finding a preparation which will prevent the patient's taking the drink which initiates the next episode. A preparation which would decrease emotional lability or afford subjective relief from tension, and which would create no undue hazards of habituation would be very desirable in the treatment of these patients.

For this purpose the effects of two ataraxics and an identical placebo have been compared in the treatment of 45 chronic male alcoholics, 32 of whom were committed to a state mental hospital, and the remaining 13 were seen in an outpatient alcoholic clinic.

Using a "double blind" procedure, the medications and placebo were prepared in identical capsules and were given orally t.i.d. in the following order to each patient for a 2-week period: phenaglycodol 300 mgm., placebo, and meprobamate 400 mgm. Placing the interval during which the patients received the placebo between the two active medications afforded an opportunity to compare both with the inactive substance.

The 32 inpatients were seen following admission to the hospital by a research nurse. Initially, the patient's statements as to his reasons for drinking and evidence of tension or anxiety were recorded as were his sleeping habits, dreams, appetite and ability to retain food. His pulse and blood pressure

were taken and the presence of a tremor, perspiration or restlessness were noted. The medication was then started and 6 weekly interviews were done in the same manner during the study.

Results.—It was planned to compare an equal number of clinic and hospitalized patients, but it soon became apparent that the medication and the brief interview were not sufficient to motivate the clinic patients to return and only 3 of the 13 outpatients completed the course.

Twenty-six of the inpatient alcoholics were believed to have completed the study, 2 escaped from the hospital, one discontinued treatment, and 2 were apprehended discarding the medication. Seven of the 26 who completed the study slept better and were less tense while taking the active preparations than when receiving the placebo. Nine stated they slept better at night, but complained of drowsiness during the day when they were on placebo. Eighteen patients who either slept better, were less tense or had a better appetite, showed the same improved state on phenaglycodol, meprobamate and placebo.

This study reflects the difficulties in evaluating a treatment for chronic alcoholism. The inpatients improved after admission and attributed their improvement to the medication, but they showed no significant change when an identical placebo was substituted nor when a second active compound was added. Several others became drowsy or improved on an inactive placebo.

The outpatient group emphasizes the importance of motivation; it is likely that a larger number would have completed the study if a better relationship had been established with the patients. It is equally likely that the resulting prolongation of their

¹ This study was generously aided by a grant from Eli Lilly & Co. All the medications used in this study were furnished by Eli Lilly & Co.

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abstinence would have been the result of the relationship rather than the tranquilizer being given.

In this "double-blind" study of a group of 45 chronic alcoholics treated during their

abstinent period, there was no significant clinical change observed in their behavior nor in their subjective state, whether they were receiving phenaglycodol, meprobamate or placebo.

THE MECHOLYL TEST AS A PREDICTOR OF IMPROVEMENT IN INSULIN COMA THERAPY

HARRY VANDERKAMP, M.D.,¹ ANNE NORGAN, M.D., GLADYS W. WILKINSON, R.N.,
AND DAVID PEARL, Ph.D.

The present study aimed to assess the prognostic value of various mecholyl chloride reaction indices for insulin coma therapy with emphasis on immediate improvement rather than on the long range effectiveness of treatment. Previous investigators of this test have relied primarily on systolic blood pressure changes as a criterion. Since these are influenced by many extraneous factors, other potentially useful variables such as pulse rate and diastolic blood pressure changes, sweating, salivating, flushing, pupillary changes and global reactivity were also employed. Serum cholinesterase levels were also evaluated.

Subjects were 125 male schizophrenic patients referred for insulin coma therapy. Prior to insulin treatment, basal blood pressure and pulse rate measurements were taken following which subjects were given a 10 mg. injection of mecholyl in the deltoid muscle. Systolic, diastolic blood pressures and pulse rates were gauged at 2, 5, 7, 10, 12, 15 and 20 minutes following the injection. Sweating, salivating, flushing, pupillary change and global reactivity were separately rated on five point scales with gradations ranging from no change to marked responsiveness. From this larger group, only those patients were utilized who subsequently completed 39 or more insulin comas. Seventy-five subjects meeting this criterion were then rated on a five point scale of improvement by the insulin ward physician who had no knowledge of these patients' responsiveness to mecholyl chloride.

Correlational and Chi square analyses of the relationship of mecholyl reactivity varia-

bles and insulin improvement were carried out. Both pulse rate and systolic blood pressure deviations from basal measurements were significantly related to the extent of therapeutic change, whereas diastolic blood pressure alterations were unrelated. Pulse rate deviations generally show higher correlations than systolic blood pressure measurements. The magnitude of correlation for both variables rises and then diminishes as the time interval following drug injection increases. Maximum correlations occur after 7 minutes, pulse rate deviations correlating .63 and systolic blood pressure deviations -.34 with insulin improvement. The maximum pulse rate deviation shows a significant correlation of .37 with improvement, a relationship not found for maximum systolic blood pressure changes.

Such variables as sweating, salivating, flushing and global reactivity were found to be significantly related at the P.05 level to insulin improvement categories. Global reactivity correlated +.70 with improvement while each of the other three variables correlated .42. Multiple correlations of improvement, pulse rate deviation and various of the other variables were not significantly greater than the simple correlation between pulse rate and improvement.

When subjects were grouped into systolic blood pressure categories according to criteria enunciated by other users of the test, patients fell into two major groups, one of category II and III subjects and the other of category V and VI subjects. A tetrachoric correlation of .49 was found between these categories and insulin improvement, category V and VI subjects showing significantly greater improvement than the others.

¹ Veterans Administration Hospital, Battle Creek, Mich.

No significant differences were found between improved and non-improved subjects for cholinesterase delta ph units and a biserial correlation of .02 was determined between improvement and this variable.

Results suggest strongly that the mecholyl test has prognostic value for improvement in insulin coma therapy and that the commonly utilized variable of systolic blood

pressure changes have a lesser relationship to improvement than several other measures. The pulse rate deviation variable being relatively objective and reliable, is probably the best index. In this study its predictive power was significantly greater than the Funkenstein test index of systolic blood pressure groupings, suggesting its possible value for prediction of improvement with other therapies.

UNEXPECTED ASPHYXIAL DEATH AND TRANQUILIZING DRUGS

LEO E. HOLLISTER, M.D.¹

Two recent contributions to this journal have suggested that tranquilizing drugs were responsible for asphyxial death in some patients(1, 2). A plea was made for further information about this possible complication of tranquilizing therapy.

In Table I, I have compiled all the unexpected asphyxial deaths at a 1325-bed neu-

ropsychiatric hospital in the past 6½ years. This sample is complete since any unexpected death comes to autopsy. Deaths from aspiration pneumonia terminating a long downhill course were excluded. Only those cases were included in which either the mode of death or its time was not expected. The midpoint of the series, 1954, was the year in which tranquilizing drugs were started on a large number of our patients.

This type of death has been no more com-

TABLE 1
UNEXPECTED ASPHYXIAL DEATHS IN 1325-BED NEUROPSYCHIATRIC HOSPITAL, 1951-1957

	Age/Sex	Psychiatric diagnosis	Contributing factors	Tranquil. drug.
1951				
50 autopsies	67 Man	CBS, syphilis		
	56 Man	CBS, arterioscl.		
	54 Man	CBS, epilepsy		
	38 Man	Schizophrenia	Aspirated tube feeding	
	53 Man	CBS, epilepsy	Status epilepticus	
	54 Man	CBS, pre-senile		
1952				
29 autopsies	67 Man	Schizophrenia	Aspirated foreign body	
	64 Man	CBS, syphilis	Seizures	
1953				
35 autopsies	31 Man	CBS, trauma	Seizures	
	52 Man	CBS, pre-senile	Seizures	
1954				
29 autopsies	46 Woman	Brain tumor	Previous episodes aspiration	
	82 Man	Schizophrenia	Aspirated tube feeding	
1955				
22 autopsies	43 Man	Schizophrenia	Seizures, post-leucotomy	CP 400 mg/day
	29 Man	Schizophrenia	Acute alcoholism, vomiting	
	60 Man	CBS, epilepsy		
1956				
25 autopsies	64 Man	CBS, arterioscl.	Previous episodes aspiration	
	41 Man	Schizophrenia	Seizures, post-leucotomy	
1957				
12 autopsies	66 Man	CBS, syphilis	Previous episodes aspiration	PCP 40 mg/day
	34 Woman	Schizophrenia	Seizures, post-leucotomy	CP 1600 mg/day

¹ From the Veterans Administration Hospital, Palo Alto, California. Leo E. Hollister, M.D., Chief of Medical Service.

mon during the period of tranquilizing drug therapy than before. What is particularly noteworthy is the high incidence of asphyxial death in patients with brain damage, particularly those with convulsive disorders. Such an association of brain damage and unexpected asphyxial death was clearly present even before tranquilizing drugs were used.

Of the 3 patients who died while on tranquilizing drugs, only 2 deaths raised the possibility of tranquilizing drugs being a contributory factor. The 66-year-old syphilitic who died in 1957 had had numerous near-fatal aspirations prior to being placed on prochlorperazine. The 43-year-old man who died in 1955 appeared to have drowned during a convulsion while swimming. He had been receiving chlorpromazine without any previously noted increase in seizure frequency. The 34-year old woman who died in 1957 had been on intensive chlorpromazine therapy. The day before her death she had a seizure (though she had others recorded before receiving chlorpromazine) and was placed on anticonvulsants. The following day she was found dead less than an hour after the evening meal. Although food particles were present in her trachea, the amount was insufficient to have caused major obstruction. Death was attributed to glottal

spasm from a seizure and irritation from aspirated food.

In some of the previously reported deaths of this type, the possibility of a concomitant seizure was entertained. Since it is perfectly possible for patients to die from asphyxia in seizures, without any tranquilizing drugs, the problem is to decide in what way tranquilizing drugs might influence the frequency of this complication. The most logical possibility is that these drugs (reserpine or rauwolfia alkaloids, chlorpromazine or other phenothiazine derivatives) may induce seizures. Many reports already in the literature attest to seizures being either aggravated or produced *de novo* by these agents. The only study of the effect of long-term drug therapy with reserpine on the swallowing mechanism showed no impairment when an objective test was used (3).

The moral seems to be: the risk of using tranquilizing drugs may be increased in brain-damaged patients or those with known seizures. This increased risk should be measured against the potential benefit from the drug.

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HISTORICAL NOTES

I REMEMBER C. K. CLARKE

1857—1957

It may be that only a few veterans in psychiatry will remember that Canada owes her most eminent figure in this field to a murder.

As 1957 marks the hundredth anniversary of the birth of Charles Kirk Clarke it is a proper time to refresh our memories of this remarkable man.

It was during the asylum epoch, when psychiatry was exclusively state medicine, when politicians exploited the institutions for the insane, and when the superintendents of these institutions were political appointees. This is not to say that there were no good men as heads of the asylums. Dr. Clarke—"C. K." as we respectfully clipped his name—was especially fortunate in his first appointment in the provincial service to come under the influence of a man (Dr. Joseph Workman, superintendent of the first asylum in Ontario, located at Toronto), to whom he always paid homage as a great leader who had helped more than anyone else to shape his own professional career.

The chain of events leading to Clarke's adoption of psychiatry for a career was like this: 1. Senior assistant Metcalf at the Toronto Asylum took a warm interest in young Clarke and the two became close friends; Metcalf later married Clarke's sister. 2. In due course Metcalf was sent as superintendent to the Asylum at Kingston, Ontario where a heavy task of reorganization awaited him. 3. Clarke, who in the meantime had become assistant superintendent at the Hamilton Asylum, was detailed to Kingston in a similar capacity, where he and Metcalf combined their efforts to bring some kind of order into asylum practice. 4. After 3 years in Kingston Clarke had had 11 years experience of the deplorable state of asylum affairs under political control and he decided to quit. "I love psychiatry but hate politics," he said. His resignation was in the hands of the government. 5. It was now 1885. Clarke and his

chief are making ward rounds. A patient rushes at them and stabs Metcalf fatally. Metcalf was 38 years old, Clarke 28. 6. At the request of the government Clarke withdraws his resignation and takes over his dead chief's job. Having put his hand to the plough he now resolves to see it through to the end of the furrow.

My first acquaintance with Dr. Clarke was during the meeting of the British Medical Association in Toronto in 1906. At this time C. K. was the head of the institution where he had served his apprenticeship under Workman. One of the notable features of that meeting was a visit to the Toronto Asylum where it was possible to observe the improvements and new features that had been inaugurated under the wise administration of Dr. Clarke. That evening he entertained at dinner guests from Britain and the United States.

The great versatility of Dr. Clarke is reflected in the variety of positions he was called upon to fill. Thirty-seven years he had given to the provincial hospital service, 26 of these years as superintendent, during which he set the pattern for modern mental hospital organization and administration. About the turn of the century, there was developing in his mind the concept of a psychiatric hospital affiliated with the University of Toronto, where not only clinical study and treatment but also training and research might be carried on. Here would have been the first such clinic in the country. Dr. Clarke's forward-looking plans and forthright criticism of reactionary and *laissez-faire* policies aroused jealousies and obstructionist activities in the service and among the politicians. Before action could be taken came the explosion of World War I and the dream, which if realized would have been a conspicuous monument to C. K.'s superior leadership, failed of fulfillment.

Meanwhile the University had made him

the first professor of psychiatry (1906), and dean of the medical faculty (1908-1920). Next came the request that he accept the superintendency of the newly created Toronto General Hospital and in 1911 he left the provincial service to assume that position, which he held through World War I. In the absence of the head of the department of psychology on military service, Dr. Clarke had charge of that department as well as of the department of psychiatry.

When the Canadian National Committee for Mental Hygiene—now the Canadian Mental Health Association—earliest offspring of the parent organization in New York City, was founded in 1918, C. K. became the first medical director and continued in that office while he lived. He also created the pioneer outpatient psychiatric clinic at the Toronto General Hospital. During the last 20 years of his life he was a member of the editorial board of this JOURNAL, the first Canadian to be elected to the board.

To go back a little, one of Dr. Clarke's earliest measures to improve the condition of hospital patients, dating from his first superintendency in 1885, was the establishment of a very practical form of occupational therapy. He set up at Kingston shops for various industries, chiefly broom and brush making. Here many patients were employed and soon Kingston was supplying these utensils not only to the other asylums in the province but to the open market as well. Of course the inevitable happened. Organized labour raised a howl that this was unfair competition. The howl reached the ears of parliamentarians in Toronto and instructions were sent to Dr. Clarke to curtail his mischievous activity in providing healthful occupation for his patients. Politics again!

Clarke was not only a medical statesman and a great humanitarian; it is fair to call him the father of Canadian psychiatry. He was a man of many interests; he was a proficient musician and organized his own string quartette. He even designed and built a pipe organ which was long in use. Near to his heart was the welfare of students and as dean of the medical faculty of the University of Toronto he was the beloved friend of

the students of that faculty. The lighter side of their life was represented by an annual performance staged by them in the university theatre. It was—and is—called Daffydill and, like *Twelfth Night*, was "What You Will." For once in the year the students could with immunity poke fun at their professors in public. Those professors, more than likely, were there to enjoy the jokes at their expense. Certainly C. K. was there. Indeed he was a promotor of Daffydill and contributed to the program.

Dr. Clarke was vitally interested in problems of immigration and was disturbed by the inefficient control or lack of control of the influx of undesirables from Europe. At his request Professor W. A. Smith of the department of psychology at the University of Toronto undertook a detailed study of Canadian immigration. This work was published in book form in 1920. In his introduction to this book Dr. Clarke characterized the record as "a chapter of tragedy and mismanagement." He condemned in strong, if not always diplomatic language, the inadequacy of immigration regulations. "It has ever been true that the failures of the old world have sought and have been encouraged to seek pastures green in the new world, without the slightest consideration of the reasons why they have not succeeded at home. . . . Those of us who are making surveys of thousands of school children, have long ago learned, however, that the descendants of these poor types fall far below the average and are simply adding to our anxieties rather than helping to build up a healthy people." One wonders what Dr. Clarke would say if he were available for comment on present conditions of immigration.

My most intimate association with C. K. was during a tour of inspection of the mental hospitals of the Dominion during World War I. Returned soldiers with psychiatric disabilities and needing further hospital treatment had at first been sent to their home provinces to be cared for in the provincial institutions. The federal department responsible for the disposal of invalided soldiers, then known by the mouth-filling title, Department of Soldiers' Civil Re-establishment, required a report on all matters relating to these vet-

erans scattered across Canada. It was desirable that one inspector outside the government should be engaged; Dr. Clarke was the obvious choice, and it was my privilege, as chief psychiatrist for the Department, to be associated with him on this tour. Beginning with British Columbia, institutions in the 4 western provinces were comfortably surveyed, provincial and hospital authorities offering every possible assistance. In Winnipeg word reached us that Dr. Clarke would not be permitted to visit any of the Ontario hospitals. In his home province which he had served so faithfully and so long and with such splendid results he was *persona non grata* as far as the government of the day was concerned.

One of Dr. Clarke's last public functions was the delivery of the Maudsley Lecture on psychiatry before the British Medico-Psychological Association in London. He was the only Canadian to whom this honour had fallen.

Born in 1857 C. K. died much too soon in 1924. Visiting him in his final illness I found him sitting up in bed busily engaged in constructing a hammock destined for a special use. He was one who could do things with his hands as well as with his head. He talked of the work of his department, and future plans just as if he might be carrying out these plans himself. He spoke of the psychiatric clinic he had hoped to see built before World War I, and of his plans for its organization. It was a touching moment when he said that he had nominated me as his successor.

At the memorial service in the University's great convocation hall it was the president, Sir Robert Falconer, who paid the tribute. His first sentence he spoke slowly and let it stand alone for a few seconds: "Charles Kirk Clarke was a good man."

His friends who listened knew the profound meaning of those words.

C. B. F.

DISCIPLINE OF THE EMOTIONS

"Refuse to express a passion, and it dies . . . on the other hand, sit all day in a moping posture, sigh, and reply to everything with a dismal voice, and your melancholy lingers. There is no more valuable precept in moral education than this . . . if we wish to conquer undesirable emotional tendencies in ourselves, we must assiduously . . . go through the *outward movements* of those contrary dispositions which we prefer to cultivate. The reward of persistency will infallibly come. . . . Smooth the brow, brighten the eyes, contract the dorsal rather than the ventral aspect of the frame, and speak in a major key, pass the genial compliment and your heart must be frigid indeed if it do not gradually thaw!

—WILLIAM JAMES

CORRESPONDENCE

ELECTROSHOCK AND HYPOTHALAMIC SYNDROME

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY:

SIR: In the June 1957 issue Dr. John C. Pollard reported a case showing an unusual hypothalamic syndrome with complete vasomotor collapse following electroshock therapy. The effect of EST on the autonomic nervous system has been of interest to me for some time. In a paper appearing in the *Psychiatric Quarterly* (Observations on Electric Shock Treatment, *Psych. Quart.* 17, 327-336, April 1943) I reported two patients with symptoms attributed to irritation of the autonomic nervous system, one of whom showed severe emaciation, multiple skin abscesses not responding to surgical treatment,

and trophic changes of nearly all fingers and toes, and died within two months after termination of EST. My conclusion was that EST produces severe stimulation of the autonomic nervous system.

A search of the literature, as Dr. Pollard has stated, fails to reveal additional cases, although it seems likely that other investigators might have had similar experiences. Much of the improvement brought about by electroshock and its more recent modifications can be explained by its effect upon the vegetative nervous system; similarly, it can be readily understood that adverse reactions are also possible.

KURT NUSSBAUM, M. D.,
Baltimore, Md.

BENACTYZINE (SUAVETIL)

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY:

SIR: I have read with interest Doctors Vernon Kinross-Wright's and John H. Moyer's article in *The American Journal of Psychiatry*, 114: 73, July, 1957, describing their experience with the tranquilizer benactyzine (Suavetil).

About two years ago Lloyd, Dabney & Westerfield Laboratories were kind enough to let me try benactyzine in my general psychiatric practice. I tried it for over a year in over 80 patients, including all types of psychiatric cases, and came to the same con-

clusions that Doctors Kinross-Wright and Moyer did.

It was occasionally effective in reducing anxiety and tension in emotionally disturbed patients. So many of the patients reported atropine type side-effects, however, that it was difficult to get them to continue medication in sufficient dosage to give them much symptomatic relief. After a year's trial with benactyzine, it was discontinued as being less effective than other tranquilizers and objectionable to the patients because of its side-effects.

FREDERICK LEMERE, M. D.,
Seattle, Wash.

DRUG FATALITIES

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY:

SIR: This letter refers to Paul E. Feldman's case report. "An Unusual Death Associated With Tranquilizer Therapy," in the

May 1957 issue of *The American Journal of Psychiatry*.

The following case report is from the psychiatric division of the Kings County Hospital Center, Brooklyn 3, New York. It suggests, as did Dr. Feldman's report, the

failure of the cough reflex to respond adequately to foreign material in the trachea.

Case History.—A 30-year-old schizophrenic female was hospitalized on April 8, 1957. The onset of her mental illness was relatively acute. Clinically, hyperactivity, agitation, hypochondriacal delusions and hallucinations were observed. At the time of admission and for most of her hospitalization she remained agitated, had a low-grade fever (100-100.6 rectally) and sinus tachycardia. The remainder of her physical examination and laboratory tests including blood urea nitrogen determination, complete blood counts and urinalysis were within normal limits. Chest and thoraco-lumbar vertebrae X-ray studies were normal.

Thorazine, 200 mgm. q.i.d. by mouth was begun on April 10, 1957. There was no untoward initial response to the drug. On the day of the patient's

death she had her last dose of Thorazine at 2 p.m. At 6 p.m., shortly after the patient had dinner she was observed in the day hall markedly dyspneic and struggling to keep from falling to the floor. She then collapsed, her pulse was unobtainable and she died in a matter of minutes.

The significant autopsy findings were marked congestion of the trachea and bronchi, with a thick gruel-like substance along the trachea, bronchi and running down into the smaller bronchioles.

I believe Dr. Feldman's calling attention to the possible adverse effects of ataractic drugs on the respiratory system is important for all physicians who employ such therapy.

IRVING J. FARBER, M.D.,
Forest Hills, New York.

WAGNER-JAUREGG

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY:

SIR: Being a pupil and great admirer of Wagner-Jauregg, I was very pleased that you commemorated his 100th birthday (*Am. J. Psychiat.*, June 1957). I would like to add a few facts, interesting especially for Americans.

It was Wagner-Jauregg who introduced postgraduate courses for foreign physicians and he is the originator of "The American Medical Association of Vienna" which brought about an important exchange of medical knowledge and culture between both countries.

Wagner-Jauregg was also the first to recognize the significance of radiology and worked actively for the establishment of a

central institute for x-rays. Many of the internationally known founders of radiology, a science whose importance is now more evident than ever, came from this institute.

After Wagner-Jauregg's retirement, Otto Poetzl, a former associate, succeeded him. Another associate, Josef Gerstmann, Wagner-Jauregg's closest collaborator of many years, especially in the field of malariatherapy, lives now in New York.

Wagner-Jauregg's memoir, *Julius Wagner-Jauregg, Lebenserinnerungen* (Reviewed in this JOURNAL July 1952, pp. 73) by L. Schoenbauer and M. Jantsch (Wien: Springer Verlag, 1950), gives an excellent picture of his personality and work.

EDITH KLEMPERER, M.D.
New York City.

ELECTROSHOCK THERAPY

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY:

SIR: I would like to make a few comments in reply to the letters by 1. Edwards and Listwan; 2. Impastato; 3. Marshall, in the July 1957 issue of the JOURNAL.

Referring to our experiences at Pinewood, we have, with our own modifications, followed Impastato's method of a muscle relaxant plus a subconvulsive shock prior to the convulsive treatment. Our equipment is

Reiter's unidirectional machine, Model RC-47D and Reiter's Mol-ac II machine with anectine the muscle relaxant. As a routine we prescribe in new cases 5 mgms. of anectine, increasing the dosage per treatment as rapidly as we feel necessary until the desired effect is attained. Approximately 10 seconds after the injection, a subconvulsive shock is administered and this is followed, in about 15 to 30 seconds, with the convulsive shock. Occasionally this latter period must be

lengthened in order to obtain the desired effect, but in the majority of cases the shorter period is effective.

We have not found it necessary to prescribe sodium amytal prior to the treatment procedure. Pinewood is a private hospital where treatments are given in the patients' rooms and pre-treatment anxiety is comparatively uncommon instead of being the rule.

We do not use oxygen before the convulsive stage, nor do we use it following treatment in the majority of cases. It has been found that under ordinary circumstances respiration begins fairly promptly after the treatment. In any group of patients however, there are always some who require oxygen to prevent anoxia. On the whole, respiration is delayed as frequently with intravenous sodium pentothal as with anectine.

Our use of intravenous pentothal for the purpose of eliminating anxiety has been practically eliminated. It has been found that in addition to anectine being much simpler to inject (due to the smaller amount

of the drug), some anesthesia is produced, or appears to be, and the patient lies quietly and is seemingly unaware of the situation. Shortly however, the drug begins to cause restlessness and at this point the subconvulsive treatment is administered. This subconvulsive treatment definitely anesthetizes the patient certainly as effectively as the pentothal and in addition it creates a post-treatment amnesia. Our contention is that it is not at all necessary to use a chemical anesthetic, or that legal hazards or cheapness are factors in the use of subconvulsive treatment. In addition to being effective and simpler, it appears to be less dangerous than the use of pentothal, which occasionally causes delayed respiration and also seems to lessen the effect of the shock treatment.

To reiterate, it is our opinion that subconvulsive treatment is a safe, satisfactory and adequate anesthetic in electroshock therapy.

WALTER A. THOMPSON, M. D.,
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Katonah, New York.

SELF-DISCIPLINE

Mistakes, misunderstandings, obstructions, which come in vexatious opposition to one's views, are always to be taken for just what they are—namely, natural phenomena of life, which represent one of its sides, and that the shady one. In overcoming them with dignity, your mind has to exercise, to train, to enlighten itself; and your character to gain force, endurance, and the necessary hardness. . . . Never to relax in putting your magnanimity to the proof; never to relax in logical separation of what is great and essential from what is trivial and of no moment; never to relax in keeping yourself up to a high standard—in the determination, daily renewed, to be consistent, patient, courageous.

—BARON STOCKMAR TO PRINCE ALBERT
(In Lytton Strachey: Queen Victoria)

COMMENT

IDEA AND ACT

From college days comes the recollection that in elementary courses in psychology we learned something about how a sense impression, energizing a neurone circuit, leads to a motor response. The process could be represented graphically. It was a picture of how an idea may spring into action. We learned also that the response might not be immediate; it might be long delayed, germinating in the mind as an idea—an image of the act—until eventually it ended as the act itself. The motor response might, of course, never take place if there were strong enough counter impulses to inhibit it; but if the climate of the mind were favorable, and if the sensory stimuli of the spoken or written word were vigorously reiterated, the motor response, if not indeed probable, at least could not be discounted. It might partake of the nature of a conditioned reflex. Thus it could be shown that, with certain exceptions which need not engage us here, before an act took place there would normally be in consciousness an idea of that act.

Later on, when we gained some acquaintance with criminology, we learned about the *mens rea*. This *mens rea* was just the old germinal idea that elementary psychology taught, only this time it was a wrongful or criminal idea. And if a person who had committed a crime was to be held accountable and punished, then it must be shown that the antecedent *mens rea* was there. If it was held that there was no *mens rea*, we would have one of those exceptions mentioned above and the accused would be adjudged not guilty of a criminal act.

In any case, lawful or unlawful, the thesis is that an overt act is the terminal fact in a causal sequence, and that in general the act follows upon and is a consequence of the idea, which was a mental image of the act.

It seems to follow that *mens rea*, however it germinates, is a dangerous thing; but that when it is specifically implanted in the mind by indoctrination and as part of a credo that has the nature of a religion, its threat be-

comes ominous. The teaching of Communism is fairly well known, and there are examples enough over there of the idea-action sequence.

In 1940 the Congress of the United States passed the Alien Registration Act, commonly known as the Smith Act. This act has not been repealed. One of the clauses makes it a crime to "advocate overthrowing any government in the United States by force or violence." In 1949, after a jury trial that lasted 9 months, 11 leaders of the Communist party were convicted of conspiracy to advocate overthrow of the Government by force and were sentenced to prison terms and fines. In 1951 the United States Supreme Court ruled that the convictions were valid and that the Smith Act as applied in the case was constitutional. The vote was 6 to 2.

During the interval since, 145 Communists have been indicted and 89 have been convicted under the Smith Act. Fourteen of these carried their cases to the Supreme Court, and in June 1957 the Court set aside their convictions. The ruling was based on arguments that the majority of the Justices conceded were "often subtle and difficult to grasp." Justice Clark dissented from the decision, stating that the distinctions were too "subtle and difficult" for him to grasp.

In its 1957 decision the Supreme Court did not repudiate the Smith Act but in interpreting it performed an extraordinary feat of psychological acrobatics. This feat consisted of a gossamer-fine distinction between "advocacy of abstract doctrine" and "advocacy directed at promoting unlawful action." According to this dialectic, "teaching of forcible overthrow as an abstract principle, divorced from any effort to instigate action to that end" is quite permissible, and presumably the High Court is prepared to defend such teaching. And so we come back to our original question—that of the relations of the idea (whether qualified as "ab-

stract" or not) to the act, and of the *mens sana* which is harmless to the *mens rea* which is criminal. Who is capable of drawing the fine distinction between the state of mind of one who teaches the commission of a crime

as a mere "abstract principle" which is declared to be lawful and the state of mind of one who commits that crime or instigates its commission? The argument is indeed "subtle and difficult to grasp."

INFORMATION VALUES

Psychiatry is presently more in the news than ever before. This may not mean much since there are other fields of knowledge as well as of ignorance about which newspapers are printing much more than the somewhat neutral bystander could expect and digest. There are now many more people who have learned to read than in times past, and there are radio and TV.

As regards psychiatry a few facts stand out which I want to mention. The old hostility to psychiatry is still alive. Psychiatric institutions and psychiatrists are still considered with outspoken prejudice. There is the notion that patients once taken care of by psychiatrists are more or less "goners." Whoever is known to be in psychiatric treatment is adjudged crazy by certain groups of our society; the compliment is occasionally extended to the therapist, for "who, after all, would deal with crazy people unless he were crazy himself?"

At the same time within psychiatry great efforts are made to train more and more psychiatrists, and, of course, to train them well. It is figured out statistically that the ratio of psychiatrists to population is unsatisfactory. A continued increase of persons needing psychiatric treatment is expected and predicted.

Streams of literature coming from two sources unite in the attempt to enlighten people. This is the popular literature in which the public is told all manner of things concerning psychiatric disturbances and abnormalities. The two sources are the professional (psychiatric) and the lay writers who in the make-up of their articles and books show unmistakable similarities, *e.g.*, the readiness to impress their readers with sensational material connected with the expectation to appear on the best seller list. It is impossible to find out which of the two sources is doing more harm. Only too often the writers do not show common sense; Dr. Alvarez,

a physician of undeniable common sense has repeatedly made remarks with sarcastic humor about this deplorable lack. (This observation does not imply that I am particularly enthusiastic about Dr. Alvarez's column.)

It is easy to pick out a particular school of medical psychology and make it responsible for the whole dilemma. If such schools were not gratifying certain needs they could not have become so successful as they still are. And, logically, if those sensational products in printer's ink were not greedily "bought" by a rather large portion of the social group, much of that ink would be spared.

We read about successes in psychotherapy, physical therapy, and research before the pertinent data have been collected and evaluated. A goodly number of non-psychiatrists pretend and probably believe that they know much better than the psychiatrists. The very reserve and reluctance of the professionals who are not willing to spill unripe beans gives those outsiders a welcome start.

All this would be irrelevant and would best be ignored if there were not all those hopes raised that cannot be fulfilled. Patients come or are brought to psychiatric offices and hospitals not only with ready made diagnoses, but with the request for a certain type of therapy, *e.g.*, shock treatment, concerning which they or/and their relatives have been informed through the kind of literature under consideration here. The Miltown epidemic, incidentally, was a case in point of inept, unprofessional information and its abuse.

Can anything be done about this situation? One may think that the agencies devoted to world, national and municipal mental health and mental hygiene have the task to gather and to distribute valid information. However, who decides what information was or is or will be valid? It is obvious that these agencies ought to receive their information from

reliable psychiatrists and psychiatric institutions. Who decides which psychiatrists and which psychiatric institutions are reliable? Who can hinder an all too eager young doctor from talking about "developments" as though the aims of pertinent labors were already reached?

I shall not attempt to answer these questions. But I shall make one recommendation. It is easy to talk about "ethics"; it is not quite so easy to keep a host of professional workers within ethical bounds. It is possible,

though, to remind members of the group of their moral obligations, and it is desirable and feasible to warn them to be utterly cautious in their pronouncements. What a blessing it would be if the publication of books which are neither bona fide literary works nor scientific treatises were stopped! It appears to me that this would be apt to do something to de-ridicule contemporary psychiatrists and psychiatry.

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CALIFORNIA MENTAL HEALTH SERVICES

The California Department of Mental Hygiene reports the release rate of patients from the state hospitals increased by 31% during the decade 1947-1956. This increase was attributed to several factors including: an increase in the ratio of hospital workers to patients; an increase in professional staff trained in psychiatric therapeutic techniques; improved material facilities designed specifically to provide treatment, not only of the acutely mentally ill patient, but also of those who may be physically ill or handicapped. Other contributing factors include the application of the more recent advances in drug therapy, an increased public awareness of the needs of patients when released to communities, and corresponding public co-operation.

The admission rate per 100,000 of the population declined from 135 in 1953 to 129 in 1956 although the total state population increased 13% in that period. During that same four-year period the resident hospital population rate per 100,000 of the general population declined from 297 in 1953 to 275 in 1956. Coupling this trend with that of the currently projected new facilities, the

department expects that the present overcrowding of the state hospitals will be brought to an end by the fiscal year 1960-61.

The department's budget for the fiscal year 1957-58 totals \$110 million. Of this amount, \$92.5 million includes a substantial increase in the level of personal services for existing hospitals and provides for the operation of newly completed facilities; expansion of family care services; continued planned research; and the establishment of additional outpatient care, including a "day-night" care program. The budget also projects \$18.5 million for the development of additional hospital facilities.

The significance of this comment may be better appreciated when it is realized that 16 years ago the California state hospitals were custodial institutions, without special facilities or personnel for the intensive treatment of the acutely mentally ill. No community mental health facilities existed and no organized effort to train or teach personnel existed west of the Rockies.

W. L. T.

Convictions are more dangerous enemies of truth than lies.

—NIETZSCHE

NEWS AND NOTES

PUBLIC HEALTH MISSION TO RUSSIA.—Leroy E. Burney, Surgeon General of the Public Health Service, reports that 5 United States public health physicians departed August 13 on a 4-week exchange mission to the USSR. Chairman of the mission is Dr. Thomas Parran, Dean, Graduate School of Public Health, University of Pittsburgh, and a former Surgeon General of the Public Health Service. This mission was arranged by the Public Health Service, in co-operation with the U. S. Department of State. The visit will provide opportunities for closer contacts between public health and medical leaders of the 2 nations, and will facilitate the exchange of technical information in health fields.

The American physicians will visit cities and villages in 5 of the 15 republics of the USSR in Europe and Asia. They will visit the Union Ministry of Health, city health departments, hospitals, dispensaries, industrial medical services, research institutes, and medical schools. A reciprocal Soviet Union public health mission will visit the United States in October.

POSTGRADUATE CENTER FOR PSYCHOTHERAPY.—In October 1957 the Postgraduate Center for Psychotherapy (218 E. 70th St., New York City) will initiate a series of International Seminars in the field of mental health by presenting Dr. W. Grey Walter, internationally renowned British neurophysiologist. Speaking on "Brain and Behavior," Dr. Grey Walter will address an open meeting at the New York Academy of Medicine at 8:00 p.m. on October 23, 1957. He will also lead two other seminars, on October 20 and 31; the subjects will be "The Physiology of Personality" and "The Cybernetic Approach to Mentality and Society." At the third meeting he will demonstrate his "electronic turtle," one of the models he designed and built for the study of nerve mechanisms.

W. Grey Walter, one of the pioneers in the development of electroencephalography,

is the inventor of a number of electronic models of nerve mechanisms, including the Conditioned Reflex Analogue which responds to an association of ideas or stimuli by a process of apparent anticipation.

DEATH OF DR. LOWREY.—With great regret we have to announce the death of our associate editor, Lawson G. Lowrey, on August 16, 1957. His death was due to a coronary occlusion. Dr. Lowrey had been a member of the editorial board since 1951 and brought to us the benefit of his considerable previous editorial experience. His loyal co-operation has been invaluable. A memorial notice and biographical sketch will appear in a later issue of the JOURNAL.

REGIONAL RESEARCH CONFERENCE, MONTREAL.—The American Psychiatric Association will hold its 6th Regional Research Conference in Montreal under the auspices of McGill University on Friday and Saturday, November 8 and 9, 1957. Final details of the program will be announced later. Invitations are being sent to all psychiatrists in Ontario, Quebec and the Maritime Provinces, and in northern New York State and northern New England.

Those wishing to submit papers or to suggest topics for discussion should communicate promptly with Dr. D. Ewen Cameron, chairman of the department of psychiatry, McGill University.

Three half-day sessions will be devoted to papers and the fourth to audio-visual presentations. The general topics at present under discussion are: 1. communications; 2. remembering; 3. effects of repetition of verbal signals on behavior; 4. object relations; 5. time and timing as pathogenic agents.

INFORMATION FOR RELATIVES OF HOSPITAL PATIENTS.—A booklet for relatives and friends of patients entering the state mental hospitals has been published by the N. Y. State Department of Mental Hygiene.

Designed to reassure the anxious family, the booklet explains what happens to the patient in the hospital and points out the role of the relative. Necessary rules and regulations and the reasons for them are discussed. The theme of the text is that after a patient is admitted, the hospital and the family must work together toward his recovery.

INTERNATIONAL ASSOCIATION OF APPLIED PSYCHOLOGY.—The International Association will hold its 13th Congress in Rome, April 9-14, 1958. Plenary sessions will deal with psychology in the training of managers, physicians, teachers and judges.

Sections of the Congress will be devoted to problems of industrial psychology and vocational guidance; medical psychology; educational psychology and legal psychology.

For further information, write the Secretary-General, Prof. Luigi Meschieri, 41, Rue Gay-Lussac(5°), Paris, France.

THE AMERICAN PSYCHOSOMATIC SOCIETY.—The 15th annual meeting of the American Psychosomatic Society will be held in Cincinnati, on Saturday and Sunday, March 29 and 30, 1958.

The Program Committee would like to receive titles and abstracts of papers for consideration for the program, no later than November 15, 1957. The time allotted for presentation of each paper is 20 minutes.

Abstracts in octuplicate should be sent to the Chairman of the Program Committee, Dr. Theodore Lidz, 551 Madison Ave., New York 22, N. Y.

NEW YORK STATE LEGISLATION CONCERNING MENTAL RETARDATION.—The Report of the New York State Joint Legislative Committee on Mental Retardation, 1957, describes legislation introduced at the request of the committee and passed in 1956. The 7 laws thus passed deal with inequities arising from liability for payment of care in mental hospitals; financial aid for Cooperative Boards; obtaining all facts concerning mentally retarded children; permitting private organizations to conduct classes in public schools; deleting the mandated 3-year age limit for classes; continuous study of the

incidence of mental retardation; greater state financial aid to the mentally retarded; the establishment of a single basic program for state aid and the establishment of 2 demonstration centers for the purposes of case finding, diagnosis and parent counseling.

Some of the recommendations of the committee for 1957 concern the obtaining of state aid to employ psychologists; the establishment of a separate division within the Department of Hygiene for an administrative program for the mentally retarded; establishment of a policy of separate facilities for mentally retarded delinquents; appropriate classes to be set up by boards of education for the retarded between the ages of 5 and 21; mandatory transportation; and scholarships for the training of teachers for mentally retarded children.

PROBLEMS OF AGING.—A pioneer Regional Center for Research on Aging is to be established at Duke University, Durham, N. C.

First of its kind in the nation, the center will be supported in part by a U. S. Public Health Service grant expected to total more than \$1,500,000 over a 5-year period. The center will serve as a pilot project in the Southeast and its success may determine whether or not similar undertakings will be launched in other regions with support from the National Institutes of Health in the USPHS.

Specific aims of the center, which is expected to be in operation within the next 18 months, include encouragement and support of research into the phenomenon and health problems of aging; training of research investigators; and development of a source of scientific knowledge in this field for government as well as for private groups.

CONNECTICUT POSTGRADUATE SEMINAR IN PSYCHIATRY AND NEUROLOGY.—The 11th Postgraduate Seminar will extend from September 18, 1957, through April 16, 1958.

From September 23 through December 6, 1957, sessions in clinical neurology, neuro-röntgenology, electroencephalography, neuro-anatomy, neurophysiology and neuropathology will be held on Mondays and Wednesdays from 3:00 to 9:00 p.m., at the

Yale University School of Medicine, New Haven, Conn. On November 27 and December 2, 1957, four sessions in clinical psychology will be held from 4:00 to 9:00 p.m., also at the Yale University School of Medicine.

From January 6 through March 3, 1958 (Mondays), from 3:00 to 8:45 p.m., sessions in general psychiatry, psychosomatic medicine, geriatrics, and psychiatry and law will be held at the Connecticut State Hospital in Middletown.

From January 8 through March 5 (Wednesdays), courses in child psychiatry and pediatric neurology will be given at the Yale University School of Medicine from 3:00 to 8:30 p.m.

There is no fee for the above courses.

Copies of the program may be obtained from the Office of the Assistant Dean for Postgraduate Medical Education, Yale University School of Medicine, 333 Cedar Street, New Haven, Conn.

EASTERN PSYCHIATRIC RESEARCH ASSOCIATION PAPERS.—Reports of papers read at the 1st annual meeting of the Eastern Psychiatric Research Association in October 1956 are presented in a monograph supplement to *Diseases of the Nervous System* for July 1957. It is a welcome service on the part of Editor Harris to have made this material available in this way. The supplement gives an introductory account of the origin and organization of the Eastern Psychiatric Research Association and presents photos of its first officers: president, Dr. David J. Impastato; vice-president, Dr. Leo Alexander; secretary-treasurer, Dr. Theodore R. Robie; and councilors, Drs. Joseph Epstein, Emerich Friedman, William L. Holt, Jr., and Harry R. Lang.

Of especial value is a complete report with detailed table by President Impastato of fatalities in EST, based on the studies of 214 fatalities reported in the literature and 40 fatalities previously unpublished.

This supplement includes also reports of papers read at a seminar on EST at Kings Park State Hospital in October 1957.

A roster of members of the Eastern Psy-

chiatric Research Association, numbering 120, is also included.

DR. TYHURST GOES TO THE UNIVERSITY OF BRITISH COLUMBIA.—From the Allen Memorial Institute of Psychiatry, McGill University, comes the announcement that Dr. J. S. Tyhurst, professor of psychiatry at McGill, has been appointed professor and chairman at the department of psychiatry at the University of British Columbia, and head of the department of psychiatry at Vancouver General Hospital.

DR. SLOANE TO HEAD PSYCHIATRY AT QUEENS UNIVERSITY.—Dr. R. B. Sloane, lecturer at McGill University and assistant psychiatrist Royal Victoria Hospital, Montreal, has been appointed professor and chairman of the department of psychiatry at Queens University, Kingston, Ontario.

SALMON LECTURES 1957.—The Salmon Committee on Psychiatry and Mental Hygiene announces that this year's Thomas William Salmon Lectures will be given by Dr. David McK. Rioch, Director of the Division of Neuropsychiatry at the Walter Reed Army Institute of Research in Washington, D. C.

Dr. Rioch will speak on "Research in Psychiatry: Certain Problems and Developments in Multi-Disciplinary Studies," and the talks will be given at 4:30 and 8:30 p.m. on Thursday, November 21, 1957 at Hosack Hall of the New York Academy of Medicine.

EASTERN PSYCHIATRIC RESEARCH ASSOCIATION OFFICERS, 1957.—At its annual meeting in June 1957, the Association elected the following officers for the forthcoming year: president: Dr. Leo Alexander; president-elect: Dr. Theodore H. Robie; 1st vice-president: Dr. William L. Holt, Jr.; 2nd vice-president: Dr. Charles Buckman; secretary-treasurer: Dr. David J. Impastato; asst. secretary-treasurer: Dr. Lawrence H. Gahagan; councilors (for 2 years): Dr. William Furst and Dr. Pasquale Lotesta; councilors (for 3 years): Dr. Nicholas Locascio and Dr. Evelyn Ivey.

BOOK REVIEWS

DIE BEURTEILUNG DER ZURECHNUNGSFÄHIGKEIT.
Ein Vortrag. (Dritte Auflage.) By *Kurt Schneider*. (Stuttgart: Georg Thieme Verlag, 1956.)

In the first part of this concise and lucid booklet, Schneider presents a short outline of his psychiatric nosological system developed largely on the basis of Karl Jaspers' psychopathology. Abnormal behaviour is either a sign of disease or an expression of abnormal mental variation. The concept "disease" is understood in a purely medical sense. It comprises the known diseases like general paresis or senile brain disease as well as postulated diseases where the clinical picture indicates the presence of a disease process although the latter is still not proved as in schizophrenia and manic-depressive psychosis. "Abnormal variations" are essentially different from diseases in that they are purely quantitative deviations from the average. No sharp borderline exists between normality and abnormal variations. In the intellectual field only the negative variations are of psychiatric importance. Clinically, they appear as congenital mental deficiencies of moderate degree whereas the severer forms are usually a sign of "disease." Other abnormal variations are abnormal vital drives, abnormal (psychopathic) personalities and abnormal reactions which comprise also the neurotic reactions.

This nosological system forms the basis for the application of Article 51 of the German Criminal Code in psychiatric cases. This article states that a punishable act has not taken place if the perpetrator at the time of the crime did not have insight into the nature of the crime or the ability to act according to this insight; either because of clouded consciousness, morbid impairment of his reasoning, or mental deficiency. If insight or the ability to act according to it was only diminished the penalty may be diminished as with an attempted crime.

According to Schneider the benefit of Article 51 should be applied in all cases of psychiatric disease, known or postulated, and in those cases of Group 2 of his classification which lead to impairment of consciousness or in cases of mental deficiency. It will usually suffice to make the clinical diagnosis because the presence of one or the other disease entity automatically implies one of the three conditions mentioned in Article 51.

The most interesting part of Schneider's booklet, however, is his discussion of the problem whether and how far the psychiatric expert is able to express an opinion regarding the accused's insight into the criminal nature of the act and his ability to act accordingly. Consequently, Schneider holds that these questions are unanswerable and remain so in a court of law. The reason is that Article 51 is based on an outdated psychology which divides any action into a rational part during which

the acting subject deliberates on the intended act, and into a phase of decision, when he decides which course to follow. As, however, our actions result from the interplay of drives, some of them unconscious, voluntary decisions between possible courses of actions are extremely rare. Moreover, it seems impossible to determine whether in a given situation of temptation ethical insight actually appeared. The time factor is also of importance, as in criminal deeds of a more complicated nature more time may elapse and more opportunity to achieve insight. As far as the ability to act according to insight is concerned, the situation for the expert is still more difficult. Even the assumption of a "free will" as the basis of any criminal code does not help because it is impossible to state whether an individual at a given moment could make use of it. In short what the expert does is to conclude on clinical diagnostic grounds whether Article 51 is applicable or not.

Although Schneider's booklet deals only with the German Criminal Code its content makes worthwhile reading for everybody interested in forensic psychiatry.

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ASPECTS DE LA PSYCHIATRIE MODERNE. By *Jean Delay*. (Paris: Presses Universitaires de France, 1953.)

The first part consists of the traditional inaugural address delivered by the author in 1947 when he was appointed Chief of the Clinic of Mental Diseases of the Faculty of Medicine. It begins with an expression of homage to his predecessor and teacher Levy-Valensi, whom the Nazis killed in a gas chamber. He pays tribute to his various teachers and guides, whose names represent a veritable Who's Who in French medicine—Pierre Janet, Pichon, Laignel-Lavastine, George Dumas and others.

He narrates the development of the physical sciences in service of psychiatry such as pneumo- and electro-encephalography, chronaximetrics, etc. The chronaximetrics is a French discovery and was developed by Lapique and Bourguignon. Psychochemistry studied the correlation of mental activity with hormones vitamins. The greatest progress the biological methods made in psychiatry are represented by shock therapy. This method does not react on the cause of mental disorder but on its mechanism. It appears to the author that the action of electroshock, being both physiologic and psychologic, proves that its effect is not only on the encephalon as was once thought but on the functional correlations between the diencephalon and the frontal lobe and more generally between the basis and the cortex of the brain.

The introduction of intelligence and character tests like those of Binet-Stanford or Wechsler-Bellevue, the Minnesota or the Rorschach enable us to make a psychological analysis with the greatest objectivity.

The research in the origin of mental disease cannot limit itself to physical causes but has to consider also moral causes. It was Charcot who was the first to call the attention of the medical profession to the role played by the subconscious in the neuroses and particularly in hysteria, Charcot and not Freud. Freud recognized the great debt he owed to the teachings of the Salpêtrière. He arrived in Paris when 29 years old and had specialized in pure neurology under Meynert without revealing any trace of his future orientation. But he was soon influenced by the Tuesday lectures of Charcot and his demonstrations of hysterics and hypnotic treatments. He even overheard Charcot telling Brouardel: "At the source of such an illness there is always a sexual element." When Freud returned to Vienna and to Breuer, he discovered, while treating a hysterical person, a new approach, quite different from hypnosis: the psychoanalytic.

Delay discusses the two tendencies that characterize the evolution of psychiatry: one looks for physical causes of mental disease and utilizes physiotherapy, the other looks for moral causes and utilizes psychotherapy. If the emotional conditions repeat themselves, an acute disorder becomes chronic. For example: paroxysmal arterial hypertension becomes chronic hypertension, occasional acid hypersecretion from the mucosa of the stomach becomes an ulcer. Functional troubles do not appear any more as a result of a discreet anatomical lesion but as its cause. He describes a visit to New York Hospital where he saw in the clinic of Harold Wolf a patient with a gastric fistula who was subject to crises of paroxysmal anxiety. Harold Wolf who studied according to Cannon the gastric reactions to emotion, observed that when the patient's condition was that of paroxysmal anxiety, the motility and the secretion of gastric acid increased and the small hemorrhages from the mucosa eroded into an ulcer. He demonstrated that an emotion may cause ulceration.

In his opening address at the First World Congress in Psychiatry (Sept. 19, 1950), Delay described the admirable study and classification of mental diseases by the psychiatrists of the 19th century as a class by itself. The introduction of biologic techniques in psychiatry belongs to the last half-century. The first use of lumbar puncture was in the infectious diseases of the brain and meninges. Later it developed into ventricular intervention and the relationships between mental and hydrolic equilibrium. Hypertension or hypotension of the brain were treated by decompression or insufflation. Dandy has shown that the injection, through the lumbar or ventricular regions, of gas or fluids, transparent or opaque to XRay, permits us to learn about certain conditions of the brain.

The biophysicists saw in all the functions of the brain, electrical influences. The "animal spirits" that, according to Descartes, issued from the pineal

gland, were nothing else than the propagation of electrical waves. Adrian, Lapicque and MacCulloch made further contributions to the interpretations.

The author comments further on the various therapeutic methods of Sakel, Meduna, Cerletti, Fiamberti and Lopez Ibor. He discusses the complexity of the psychic and physical reactions that accompany shock. In the observations of Aschner, Camus, Roussy, Claude and Lhermitte.

"Neurosis and Creation" is the title of a Presidential address which Delay delivered in Liège July 25, 1954 at the 52nd Congress of Neurologists & Psychiatrists. He discusses the theories of Lombroso and Nordau that caused hot polemics by the end of the century on the topic of degeneration. André Gide in his essay on Dostoyevsky expressed the idea that the cause of every great moral reform, of all changes of values, is a physiological mystery. He discusses in a new light the mental deviations of authors in modern times.

HIRSCH LOEB GORDON, M. D.,
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THE CIRCLE OF GUILT. By Fredric Wertham, M. D.
(New York: Rinehart & Co., Inc.; Toronto:
Clarke, Irwin & Co., Ltd., 1957. \$3.00.)

In 1954 Kenneth Chapin, aged 20, killed a 19-year-old baby-sitter and the little boy aged 4 she was guarding. The weapon was a bayonet. The youth had stabbed the girl 38 times and the child 23 times. This was in Massachusetts. No motive for the crime was established. The killer was first sentenced to death, but the sentence was later commuted to life imprisonment.

The Chapin case represents a special type of juvenile crime. The one discussed in this book is of another type—a teen-age gang homicide in New York City. A Puerto Rican youth, Frank Santana, aged 17, accompanied by two other members of his gang, all Puerto Ricans, encounters a youth belonging to a hostile gang. Some blustering words and behavior follow. Frank takes a gun from his companion and, whether by design or accident, the gun is discharged and the unfriendly boy is killed.

In court several months later Santana pleaded guilty to second degree murder and there was no trial. For this crime the sentence required by law is 20 years to life. The judge gave him 25 years.

Dr. Wertham had been retained by the defence, with no fee, since the family of the accused was on relief. The purpose of his investigation was to establish all the factors, social, economic, cultural, educational, that might reasonably be assumed to have bearing on the crime, to show what kind of personality Santana had developed, what was the customary content of his mind, what had come to be his standards of conduct, and therefore to indicate if possible whether *mens rea* could be said to have existed at the time of the shooting. All this would have been useful information for the jury in the event that the case had come to trial. There were background conditions, Santana's almost daily sessions at crime movies, his daily diet of horror comics—"creeps" was the common term

for these books. Santana had collected as many as two or three hundred of these creeps. No other literature interested him. Wertham calculated that in the 4 years that Santana had been in continental United States "in the comic books that he had read and in the movies that he had attended, he had seen at least 22,000 homicides." He quotes George H. Pamphrey who said, "One thing is certain: children fed on a regular diet of horrors and brutal crimes will gradually lose their sense of what is right and wrong."

An especially important chapter in this book is one dealing with the Island of Puerto Rico where Santana was born, its history and development and the living conditions there before and after the Spanish-American War when the Island was annexed to the United States (1898). Conditions existing in Puerto Rico during the twentieth century, as described by John Gunther and others, are not flattering to the United States. These conditions throw light on the considerable migration of Puerto Ricans to the mainland, as they have a right to do being citizens of the U.S.A., but where they are met with unfavorable prejudice and discrimination and a common view that they represent a substandard group. These circumstances do not promote integration but help to explain why the ratio of delinquency and crime among Puerto Rican minors on the mainland is so much higher than in their island home.

Because there was no trial Wertham did not have the opportunity to present before a jury the data he had collected and the conclusions he had drawn therefrom, and so he decided "to write them for a larger jury" in this revealing volume.

C.B.F.

HEARING THERAPY FOR CHILDREN. By Alice Streng and others. (New York: Grune & Stratton, 1955. \$6.75.)

In the preface the authors claim that they have produced the first book to contain in one volume the special skills and knowledge needed by members of certain professional groups who work with hearing handicapped children. The groups mentioned are the physician and five groups of lay people.

The hopeful reader notes with approbation the titles and sequence of the chapters and at the end of each of the latter a list of papers by many distinguished writers and workers.

The field covered by the book is so broad that no one reader could claim such mastery as to be able to justly criticise every detail. The writer of this review has devoted many years to children with impaired hearing and deaf children and knows many of the authors whose works are referred to and believes that the book fails to achieve its aims.

This book is ostensibly written regarding the needs of children—and children require very careful consideration. Only older children who are thoroughly healthy, well disciplined, and of above average intelligence can be subjected to the tests

and the treatments suitable for adults. Even such children require unusual gentleness and patience and these qualities must be joined with unusual skill. A child is very able to detect lack of these qualities in its otologist and when it does, the examining, the testing and the decisions made are apt to be very wrong. The younger the child the greater the difficulties.

Every page of a book with this title should be permeated with this point of view. A number of fundamental misconceptions greatly impair the value of its message.

It is true that the antibiotics, when properly used, diminish the severity of upper respiratory infections so that mastoid surgery is much less frequently required and incision of eardrums is fortunately uncommon. Earache should be treated promptly and often is—but it is still very common and earache often means otitis media, and every otitis media carries with it the threat of impaired hearing. The lesson for the lay groups should be insistence on adequate and persistent treatment of every case of earache by the physician. Prevention should be the keynote.

It is implied that a pure-tone audiogram has the same meaning from coast to coast and that the meaning is very valuable. But it has been demonstrated unquestionably that audiograms on the same patient obtained under different environmental conditions, and by different examiners can be amazingly dissimilar. An audiogram is nothing more than a record of how a patient responded on a certain date to a certain technique under certain conditions. When repeated at a later date comparison of the two records has no value unless the technique and conditions were exactly the same as those of the first test. No diagnosis can be made from an audiogram alone. And finally—pure-tone audiograms on little children can be extraordinarily full of errors.

Great stress is laid on "interpreting the audiogram." Some technicians can be taught to administer some of the tests but from what has just been said such technicians should *never* interpret them. And yet this book tells them how to do so.

The bibliographies in some instances contain references which to judge from the text of the preceding chapter have not been read or if they have been read have been misunderstood.

The index is far too short and it is irritatingly inaccurate.

To give a complete account of the failings of this volume would take a great deal of space. It is doubtful whether any chapter except the one, "Hearing Losses and their Medical Treatment," will satisfy any reader of moderate ability in an acquaintance with otology. It contains a vast amount of information and details of many skills which the lay groups for which it is written do not require and cannot understand.

D. E. S. WISHART, M. D.,
Toronto, Canada.

A DOCTOR'S BOOK OF THE HOURS. By *Merrill Moore*. (Springfield, Ill.: Charles C. Thomas Co., 1955. pp. 397. \$6.00.)

Merrill Moore speaks of having written in the neighborhood of one hundred thousand sonnets. The question still remains: a *tour de force* or a dissipated talent? His recent volume, *A Doctor's Book of Hours*, presumably the output of one year, runs to 397 pages, the equivalent in quantity to the collected works of many major poets. It does not lend itself to classification and refuses to fit neatly into this category or that. Call it poetry and immediately it springs a leak and drains away into journalism; but the dilemma remains, for every now and then a live poem jumps from the page and, presto, the good reporter becomes a good poet.

The months of the year give titles to the 12 sections of the book; sub-headings include Analysis of Men, Natural History, The Clinic, Public Life etc., and it might seem that every angle of the world we live in, of the inner and outer man, had been explored by this prolific sonneteer. One expects Moore, as psychiatrist and poet, to be a kind of double deity (poets have ever considered themselves divine, and the psychiatrist must perforce play the role of god), yet even in the discerning sketches of people the poems seldom transcend the analyst's couch.

Though *A Doctor's Book of Hours* demands a patient search before it reveals the talent that is, nonetheless, scattered through its pages, the reader whose interest does not lie in consistent poetic merit will find a variety of lively observation and good reporting on a multitude of subjects. Merrill Moore himself describes the poetic process; he would do well to take his own words to heart, and to buy a new and stronger lock for the djinn. Here are his lines:

THE POET OWNS A DJINN, SHUT IN A BOTTLE HE
RUBS OCCASSIONALLY; THE BOTTLE IS HIS MIND

The impulse to write a sonnet is an impulse
To record something that is momentarily
Felt with volatile intensity
Or something that may, over a longer time,
Be felt more deeply, although less intensely
But with a kind of continuity
And earnestness approaching the sublime.

More than that, (this is only the beginning)
Sonnets are virtuous, the opposite
Of sinning; for example when we look
With comprehending eye on Shakespeare's book,
We find a record of great passion there,
Most of which, I suspect, was thinnest air,

Not flesh and blood, because, if it had been
An active passion, in reality,
The poems would *not* be written, and the djinn
Would have escaped the bottle;

as it is,
His strength lies in this fact: he is confined,
His power is locked in the poetic mind.

ANNE WILKINSON,
Toronto, Canada.

AMERICAN LITERATURE AND THE DREAM. By *Frederic I. Carpenter*. (New York: Philosophical Library, Inc., 1955. pp. 220. \$4.75.)

"The American Dream" began long before the Revolutionary War. It started in Western Europe and the British Isles. It was very simple in its origin and it meant only one thing—a fuller, richer, and better life for all. It was not a revolutionary concept and had nothing whatsoever to do with any later "socialist" or even later "communist" ideas. It did share something of the qualities of Sir Thomas More's "Utopia" and possibly it got something from Plato's "ideal" for a republic.

In this book the author makes remarkable selections from American literature beginning with Emerson and Bronson Alcott and brings the idea up to date including stops at many way-stations. Walt Whitman would be amazed if he were living to see his casual thoughts so sharply emphasized. Melville, now so popular as the portrayer of Moby Dick, is allowed to contribute a small donation.

In Part 4 of this book more recent thinkers are grouped under the heading of "pragmatists" and even Eugene O'Neill is given some credit. The author has objectively harvested a very wide field, but he has sifted his material down to "big" names and the way they deal with "big" ideas for good and for evil. He treats Robinson Jeffers in an interesting way, also Thomas Wolfe, John Steinbeck, William Saroyan and Ernest Hemingway. I wish he had also analyzed John Crowe Ransom and Robert Penn Warren, who have much to say about the general topics of this book. It is very provocative writing but not always conclusive. The general method of the author is eclectic and this book will appeal to the general reader who has begun to think about that most basic of all ideas, what is good and what is not good, as it applies to the major literary figures who have written since the American states became united.

MERRILL MOORE, M. D.,
Boston, Mass.

THE DIRECTION OF HUMAN DEVELOPMENT: BIOLOGICAL AND SOCIAL BASES. By *M. F. Ashley Montagu*. (New York: Harper & Brothers, 1955. \$5.00.)

We are in the midst of a surge of interest in the meaning of personality development, as it has become increasingly obvious that this topic has a unifying and profound influence on all the aspects of the behavioral sciences. Professor Ashley Montagu joins this movement by presenting his synthesis of the process of human socialization.

This volume had its inception in the sociology classrooms of Harvard University in 1945, and was nurtured to birth through teaching at other universities. (A preliminary precipitate, entitled *On Being Human*, was published in 1950 by Henry Schuman.) Dr. Montagu has brought together the research consequences of hundreds of studies, all properly notated, and has presented them and his conclusions in a highly readable manner. As he

wanted to reach as wide an audience as possible, he points out that he has omitted many pertinent references.

He begins his presentation with a discussion of the biological basis of co-operation. Much evidence is marshalled to illustrate that even very simple biologic life is interdependent, and that co-operation is a more fundamental rule than the blood-tinged struggle in nature suggested by Darwin. A chapter summarizing the structure and function of the nervous system is followed by one which points out that the expression of heredity is a function of the organic potentialities and the environment. Prenatal development, and influences thereon, are discussed along with the meaning and significance of birth and its trauma. Motivations are divided into basic needs which are closely related to the organic processes of the body, and acquired needs. It is shown that even the vital basic needs become affected by cultural demands, which in turn most significantly determine the vast number and varied acquired needs. The last half of this volume is devoted to variations on the themes of dependency, interdependency and love. The author proclaims the essential goodness of Man, the fallacy of individuality, the importance of early experience, particularly as characterized by love, and the devastating results of a deprivation of love. In his last chapter, he attempts to define the various functions of love. He concludes with a fervent plea that the primary goal of education be the skills of human relations. An appendix makes possible a discussion of learning theory and how it may further our understanding of human development.

This is a good book and a sound one. It represents the best of the current trend to broaden the realization of the importance of interpersonal and cultural influences on personality function and development. With its emphasis on co-operation and love, it may seem to many people that it overlooks the potential aggressivity and destructiveness of Man, whether inborn or learned. It should have a wide audience. The intelligent layman will find it stimulating and instructive, as will the students

of the various social sciences. For the student of medicine, it will be more useful as a reference work than as a suitable text on personality development, because it deals more with the socializing forces than what happens to the person throughout life.

ERIC T. CARLSON, M.D.,
New York Hospital—Cornell
University Medical College.

SOCIAL PROBLEM OF MENTAL DEFICIENCY. By N. O'Connor and J. Tizard. (London & New York: Pergamon Press, 1956. \$5.00.)

This book is an excellent addition to the literature dealing with the problems of the mentally retarded, and particularly, with the problem of the employability of this group. The volume deals with the general care and treatment of the mentally retarded, particularly, in a British scene.

The authors present a detailed psychological study of the high grade defective as a social problem. There is an excellent review of the literature of psychological research and the authors also offer results of their own research in the direction of types and occupations which the feeble minded can be trained to do, and the predictability of success. The outlook on the whole is an optimistic one with emphasis being laid on the necessity of psychological and workshop investigation when arranging for a program of employment placement.

The first three chapters deal with the historical background of the problem of mental deficiency and detail the services for this group in Britain. The ensuing chapters cover studies of training and occupation placement of high grade defectives and investigations into the prediction of occupational success.

On the whole this small volume will be welcomed by professional workers in the field of mental deficiency and will prove a worthwhile guide to those concerned with the rehabilitation of the feeble minded.

H. F. FRANK, M.D.,
Ontario Hospital Training School,
Smith Falls, Canada.

SCIENCE

Science is nothing but trained and organized common sense, differing from the latter only as a veteran may differ from a raw recruit: and its methods differ from those of common sense only as far as the guardsman's cut and thrust differ from the manner in which a savage wields his club.

—THOMAS HENRY HUXLEY

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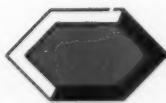
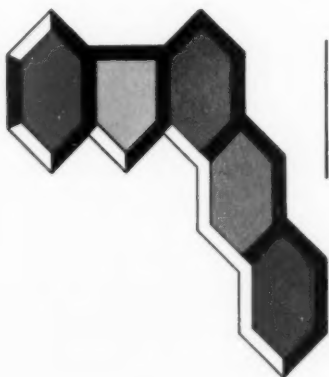
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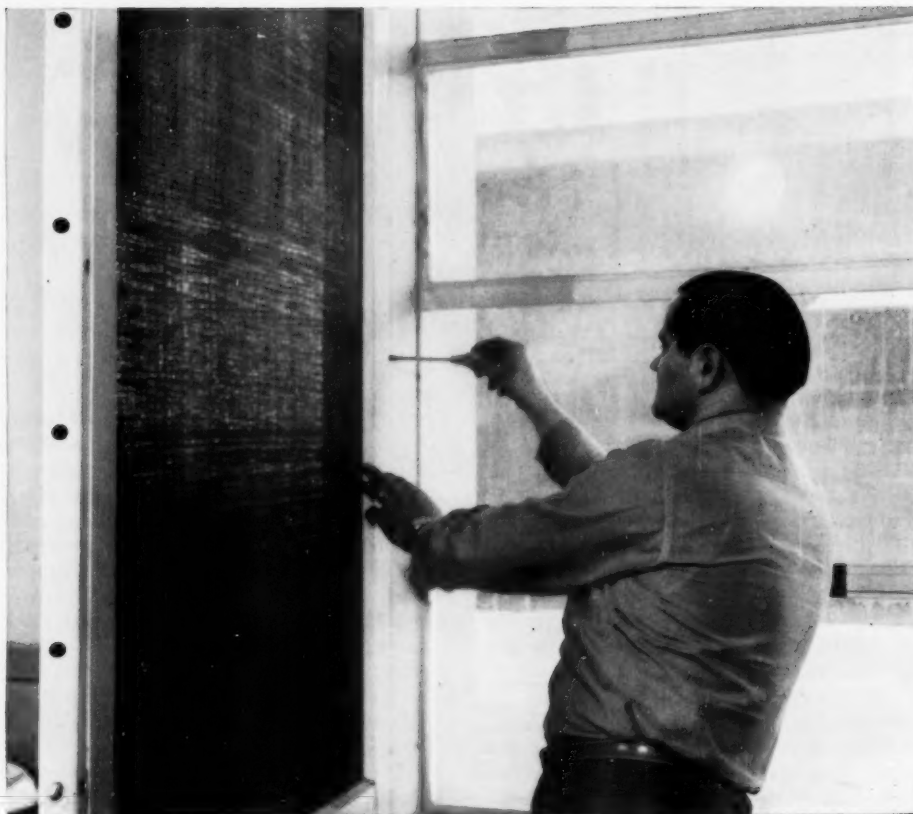
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References: 1. Communication to Abbott Laboratories 1956. 2. Moyer, J. H. et al; Deserpidine for the Treatment of Hypertension, Southern Medical J., 50:499, April, 1957.

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1. Levy, S., *JAMA.*, 153:1260, 1953
2. Thompson, L., *Procter R., North Carolina M. J.*, 15:596, 1954



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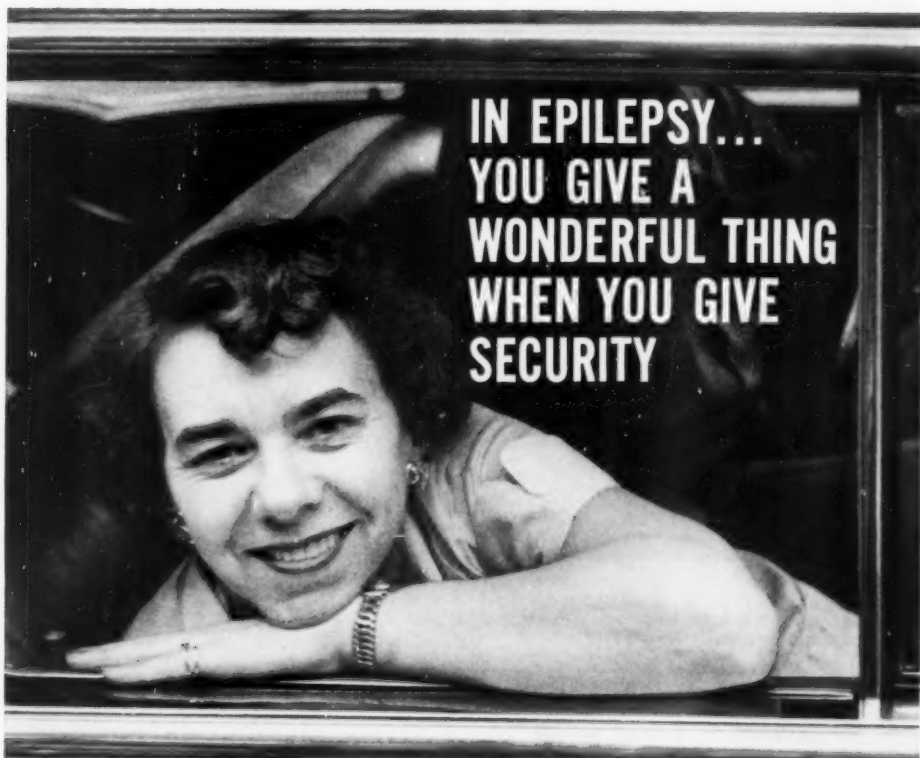
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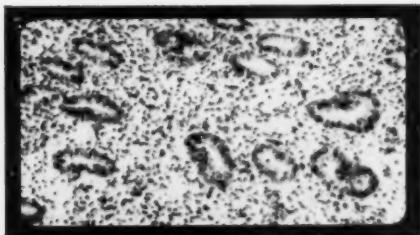
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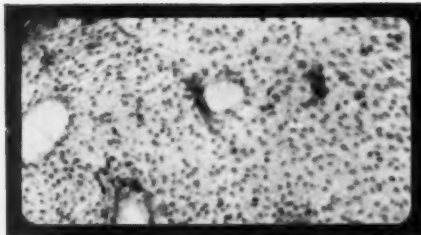
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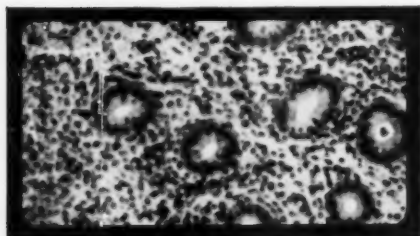
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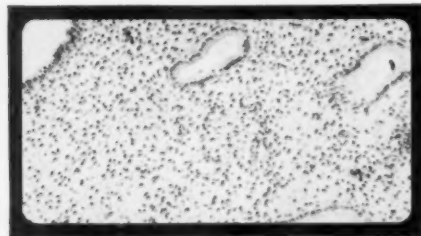
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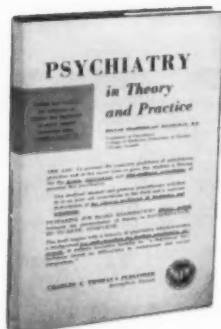
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